DOCUMENT RESUME

ED 115 584 SP 009 619

AUTHOR Alvir, Howard P.

TITLE Saving Educational Dollars through Quality Objectives.

NOTE 115p.

EDRS PRICE MF-$0.76 HC-$5.70 Plus Postage

DESCRIPTORS *Accountability; *Achievement Rating; Behavioral Objectives; *Performance Based Education; *Performance Criteria; *Teacher Evaluation; Teachers; Test Results; Writing Skills

ABSTRACT

This document is a collection of working papers written to meet the specific needs of teachers who are starting to think about and write performance objectives. It emphasizes qualitative objectives as opposed to quantitative classroom goals. The author describes quality objectives as marked by their clarity, accessibility, accountability, and ability to be evaluated by laypersons. The author devotes a section to each of these characteristics and concludes with statements on the relevance of quality performance objectives to the graduate student, the college president, and the educational researcher. (DDO)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED115584

58

Howard P. Alvir
27 Norwood Street
ALBANY, New York 12203

NO INSTITUTIONAL
SPONSOR

SAVING
EDUCATIONAL
DOLLARS
THROUGH
QUALITY
OBJECTIVES

U S DEPARTMENT OF HEALTH.
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

SP009 619

Working Papers on Performance Objectives and Their
Relation to Accountability

CONTENTS

INTRODUCTION		Accountability, Evaluation, Accessibility, Clarity Alternatives to Merely Cutting Corners
CLARITY		Specifying What an Educator Is Trying to Do
	DEFINITION	What Is a Performance Objective?
	FEEDBACK	Translating This Definition into a System That Permits Teachers to Exchange Ideas
	CAREER GOALS	A Self-Initiated Individual Choice
	AWARENESS	The Possible Advantages and Implications of This Systems Approach Coordinating Classroom Teaching, Evaluation, and Feedback
	PERSPECTIVE	Possible Distortions of Performance Objectives and Suggestions on How to Use Them Properly
ACCESSIBILITY		Finding Out What Other Educators Are Doing
	THE FIRST STEP	How to Start Writing Performance Objectives
	REPORTING FORMAT	The Question with Many Possible Answers and Approximations
	THE NEXT STEPS	Starting to Think in Terms of What a Computerized System Can Do That an Individual Teacher Can't
	CURRICULUM	State Syllabus? or a Tally of What Is Actually Taught in the Classrooms across One or More States!

EVALUATION   Determining How Well Objectives Are Attained

PERFORMANCE TESTING	Putting Research to Work for the Classroom Teacher Interested in Industrial Standards
CONFERENCE FEEDBACK	Using Goal-Awareness Instead of Speaker-by-Speaker Evaluation
BUILT-IN EVALUATION	Trying to Put Evaluative Criteria in Terms the Man on the Street Can Understand

ACCOUNTABILITY   The Relations Between Dollars and Learning

EDUCATIONAL ISSUES	What to Do When the Experts Disagree with One Another
ACCOUNTABILITY	On an Individual, Voluntary, and Confidential Basis
QUALITY	How to Recognize Excellence as the Accomplishment of Clearly Stated Goals
AFFECTIVE DOMAIN	Developing Core Objectives That Pinpoint Attitudes Necessary for All Occupational Areas Related to Entry Level Occupations

APPLICATIONS   Extending This Approach to Typical Adaptations

GRADUATE SCHOOL	The M.A. -- Developing the Graduate Frame of Mind Through Recognizable and Readily Evaluated Performance Levels
COLLEGE PRESIDENT	The Role of the College President Towards Objectives -- Structuring a College for Growth Rather Than Relying Solely on Charismatic Leadership
ON-GOING PROJECTS	Brief Resumes of What Others Are Doing to Present Their Programs in Terms That Can Be Understood by a Larger Audience Than That of the Specialized Researchist

INTRODUCTION

Accountability, Evaluation, Accessibility, Clarity

Alternatives to Merely Cutting Corners

Accountability is nothing new on the educational scene. Teachers have always been responsible for their professional acts and decisions and accountability is a new name for professional responsibility.

To whom is the teacher responsible? This is a question with many answers. In general, the teacher must answer to others whether they be students, parents, administrators, or school board members representative of the general public. As a professional, the teacher must answer to his own competence and knowledge; in the classroom, the children are in the majority. This is no place for an educational vote on "What knowledge is of the most importance?" The children will be able to express their individual desires and interests. The teacher will be able to respond to these expressed wants in a way that can distinguish between what is good and what is bad for a particular child, between what is really a basic human need and what is a passing imperative of an immature but maturing human being.

Humanistic education is an approach to schooling that respects the individual human as being important : students are important and so are teachers. Humanistic education recognizes the need for qualitative objectives rather than merely mechanical and quantitative classroom goals.

It might be asked, "Why the title, Saving Educational Dollars Through Quality Objectives?" This title was chosen to emphasize the most visible effect of quality objectives. It is in no way meant to suggest that quality objectives cost less. In fact, they cost more in a wide variety of circumstances. This is simply because they are worth more.

A quality item can save money in a number of ways. Quality lasts longer; it can be modified to fit individual circumstances in ways that throwaway less expensive items can't. Quality is a more individualized approach; it can be adapted to large numbers in ways that avoid the stereotyping of mass-production.

Clarity in a quality objective means that it can be understood by the man in the street and by the expert; there is no need to cloak meaning in terms known only to the highly specialized researchist. Accessibility in a quality objective means that it can be bounced around and compared on more than a local or provincial basis; people do learn from one another in a basic feedback approach provided a basis for communication is set up; professionals need to know what other professionals are doing. Evaluation in a quality objective means that it can be assessed by anyone of reasonable intelligence; similar to the situation at a sporting event, the non-athlete who knows what is going on is able to come up with evaluative judgments based upon objective and impartial visual inspection; there is no need for a semi-mystical approach when worthwhile goals are expressed in comprehensible language. Accountability in a quality objective means that teachers are aware of the educational issues in question; they know how to recognize quality when they see it; there is no need for policing by outside forces since self-regulation is often more demanding; this is especially true when it is done on an individual, voluntary, and confidential basis.

Clarity in a quality objective helps the student understand what is going on in the classroom; this indirectly helps the funding of the school since the average concerned parent will make financial sacrifices for his child's education if the education received is perceived as valuable; even the best goal in the world will not be appreciated if it is not understood. Accessibility in a quality objective helps the teacher learn what his colleagues are doing in similar situations; this indirectly saves money by avoiding needless duplication and by the adoption of goals and techniques found to be effective in terms of learning and cost-analysis; it doesn't mean spending less money on education; it means spending educational dollars more wisely. Evaluation in a quality objective means that the desired degree of excellence is spelled out for teacher and student alike; there is no greater waste of educational dollars than instruction which misses its mark; once the student knows exactly what is expected of him, he is more likely to perform in a manner that will satisfy both himself and his educators whether they be teacher, parent, or society. Accountability in quality objectives means that dollar cost is not the primary consideration; humanistic growth and development is worth much more than the money invested in fostering them; as a matter of fact, it can be argued that even from the dollars and cents point of view, funds placed into education yield more in terms of long-range payoff; as in any educational situation, it is the final results that count.

Merely cutting corners in education is evidence of fiscal austerity and not necessarily of educational planning. Quality objectives are based upon the assumption that curriculum development is basically staff development; staff development can then be seen in the light of performance objectives as the ability to spell out educational goals in understandable language and in such a way that eventually someone will be able to objectively declare a particular educational effort a success or a failure. Quality objectives will cost a lot of money, but eventually they will come up with better analyses than "We need more money," or "We need more time," or "We need more personnel."

When educational dollars are seen as catalysts or means to ends rather than panaceas, then the general public will be able to invest more dollars in approaches seen to be successful from a number of points of view. Whether you call it "quality objectives" or "saving educational dollars," it is an approach that needs to be observed and pondered in a time when human ability and potential as well as public funds are recognized as natural resources that must not be wasted.

NOTE : How This Document Came into Existence

Basically this document is a collection of working papers written to fill specific needs of teachers starting to think about and write performance objectives. Some of these sections were developed at one or more seminars and discussions on the implementation of a process to improve classroom instruction. It was felt that the front lines of education are to be found in the classroom and not in the curriculum guides; similarly, the place to test out new ideas in education is not in a psychological laboratory but in the classroom in front of real and often unpredictable students. Similarly, the desired objective of all this work was not the discovery of a method or of a perfectly formulated objective; what was sought was a process of introducing objectives into the classroom in a format which could benefit from the experiences of hundreds of teachers trying to make their instruction more relevant.

It was not felt that educational progress meant an immediate or drastic change in the way things were to be done. Innovations that become progress have a quiet way of gradually inserting themselves into the classrooms of teachers who are not satisfied with their past successes. Teachers like this have empirically discovered their own individual way of testing out tentative but clearly defined approaches to deal with classroom objectives : this applies both to objectives that can be pre-planned with precision and to objectives that seem to emerge with serendipity. Society needs both kinds of goals : it cannot afford to have "creative spellers" or "imitative thinkers."

Re-reading each of the following sections makes clearer and clearer that certain values were almost unconsciously smuggled into the text. To avoid any misrepresentation, here are a few of them for consideration :

- Not all teachers write their classroom goals; this does not mean that these teachers have not thought about instructional objectives.
- Sometimes the opponents of performance objectives have more insight into what is really wanted as a result of all the discussion and writing of course objectives.
- This is especially apparent when it comes to [illegible] of objectives for even one course. If [illegible] be taught had to be written out, the [illegible] impossible to manage.
- Seen in this perspective, writing performance objectives really means writing the most important anticipated outcomes of learning.
- In practice, this means selecting from the work of others and writing a few objectives to meet the needs of both individual students and of individual teachers in a particular local situation.
- Since it seems obvious that many teachers base their classroom performance upon how they were taught, it would seem that, if any system of performance objectives is to succeed, it must be based upon the shared experiences and objectives of many teachers teaching the same or similar courses.

- Not surprisingly, the more one leaves the realm of elementary and psychomotor objectives, the more difficult it becomes to pre-specify educational goals. This does not mean that a goal which can't be precisely spelled out must be excluded from the curriculum.

- It is to be expected that many teachers will start writing performance goals of a very poor quality when considered from the viewpoints of relevance and specificity. These goals are not to be rejected by a school; they should be accepted and improved in an atmosphere which encourages colleague collaboration.

- Literature on behavioral and performance objectives is quite well written and convincing. However, when it comes to actual implementation, the process of clearly specifying objectives is one that can lead to a number of excesses that can interfere with the main job of a teacher.

- Thus, it must be recalled that the main job of a teacher is making sure that his students are learning. No matter how he does it, a teacher is teaching when his students are learning.

- If such things as the writing or choosing of goals or objectives interferes with this teaching-learning process, then writing and choosing must be subordinated to the primary objective of increasing learning.

The following pages were written to share with you an approach that has been found helpful in getting teachers to start clarifying their classroom objectives in such a way that they can share their classroom discoveries with other teachers. It is hoped that reading it will help you share your classroom objectives and experience with others.

CLARITY

Specifying
What
An Educator
Is Trying
to Do

DEFINITION : What Is a Performance Objective ?

One of the key concepts taken for granted in the following pages is that of "performance objective" or "behavioral objective." This concept is often associated with such things as criterion-referenced objectives, built-in evaluation, terminal student performance, and performance-oriented objectives. For the purpose of this discussion, all of these terms are assumed to be practically synonymous even though each emphasizes a different aspect.

A performance objective is defined as a statement of an educational goal or objective in such a way as to clearly answer three questions about the teaching-learning-evaluation process :

- Exactly what will the successful student be expected to do?
- What materials and what procedures constitute an integral part of this student performance?
- How will one know when the student is performing this goal successfully?

Implications of This Definition

Performance objectives tell the student or trainee what it is that he or she will be expected to do when he is evaluated, the conditions under which he will have to perform, and the level, extent, or quality of performance expected.

To meet the standards herein spelled out, such an objective must be written in language that is clearly understandable by students, trainees, and the general public. Straightforward language works better than scholarly and obscure terminology as a vehicle with which to write objectives.

A well-written performance objective should do three things:

1st • It should clearly indicate what it is that a student who has mastered the objective will do or perform.

2nd • It should say under what conditions the student will be expected to do this.

3rd • It should say to what extent or degree of excellence the student will demonstrate his ability to perform.

The mere act of writing objectives will cause most teachers to come to grips with what they are trying to do in the classroom. This is a positive step towards relevant instruction. It also will give rise to an important question in making instruction more effective, "What materials and what procedures will best help the student attain objectives commonly agreed upon as relevant?"

This document will center on writing objectives and on working them into an integrated system. However, it must always be kept in mind that writing is the means to other goals, e.g. the development of goals meaningful both to student and to teachers and the evaluation of methodology in order to improve instruction, to name only two examples.

The Rationale Behind Performance Objectives

Performance objectives are statements which describe what successful students wil be capable of doing at the conclusion of a particular learning unit.

- Properly written performance objectives leave no doubt as to what is expected of the trainee at the end of instruction.
- These objectives do not try to dictate to the teacher the methods to follow or the classroom procedures to employ in his teaching.
- However, they do eliminate haziness about what is to be accomplished.

There is nothing new or extraordinary here. Experienced teachers have been doing this even though they have not always put it down on paper. Writing goals encourages feedback from other teachers. When one starts exchanging professional ideas with colleagues, suggestions and improvements start to emerge in an atmosphere of enthusiasm. The following sections which spell out exactly what is meant by performance, conditions, and extent are intended to help teachers get started expressing, writing, and choosing their objectives.

Components of a Well-Written Objective

A well-written performance objective should spell out three things:

- the performance expected (an observable activity demonstrable by the learner)
- the conditions wherein the student will have an opportunity to demonstrate the newly acquired behavior or performance
- the extent or degree of the expected student performance which will serve as the evaluative criteria to assess the anticipated performance.

What Is Meant by "Performance"?

Performance can be equated with doing.

If performance is to be measured, it must be observable.

In other words, a statement of performance must specify an activity that can be observed directly.

Such verbs as "know, comprehend, and understand" specify activities that can only be inferred or seen indirectly. An objective is more clearly written when other more visible and more observable verbs are used:

- A teacher who says he wants his students to "understand" carburetors is less clear than a teacher who wants his trainees to be able to "clean" a carburetor.

- Similarly, the teacher who says he wants his students to learn how to "subtract" two digit numbers is more frank in the same circumstances than the teacher who claims for his goal "a deeper understanding" of mathematics.

Neither of these last two objectives is faultlessly written; the conditions and the extent of the desired student behavior are not spelled out, to name only two possible sources of improvement. However, the change from an abstract verb to a more specific verb has improved the visibility and observability of the intended instructional objective.

- It is much easier to recognize a student that can "read" voltmeters than a student who "understands" measuring instruments.

- A student who can "re-wire" a defective motor is more observable than a student who can "comprehend" the principles of electric motors.

Even the word "know" will have a different meaning to a teacher who relies upon "memory" questions and to a teacher who relies upon "brainstorming" techniques. It is helpful to the student if these differences are spelled out.

What Is Meant by "Conditions"?

Conditions refer to the circumstances in which the student is expected to perform

Every situation will have its own given restrictions which can range from such obvious things as "paper and pencil" and "common tools" which need not always be stated to more complex measurement questions such as:

- Will this be an open or a closed book examination?

- Must the student work strictly from memory for formulas and data or will he be allowed to use reference tables?

- When the student identifies the resistors will he work from memory or with a color guide?

Each of these and similar questions about conditons are important since a change in the details of performance is often directly associated with a different type of cognitive functioning.

What Is Meant by "Extent"?

Extent refers to how well the student is expected to perform.

This can be expressed in a number of ways:

- minimum standards

- maximum number of permissible errors

- specification of time standards

- tolerance

- definition of correct or successful

- expected percentage of success

- minimal number

- degree of excellence

In other words, this is an attempt to make as specific as possible the evaluative criteria that will be used to assess the performance.

DISPLAY

An Analysis of Performance, Conditions, and Extent

Do - - - Expressing Objectives in Terms of Student Performance

Some school curriculum guides use words such as "understand, appreciate, know" to express their objectives.

From the point of view of behavioral objectives, the difficulty with these verbs is that the performance is not directly observable. These verbs do not tell what the student or trainee is supposed to be able to do as a result of this knowledge.

Conditions - - - Specifying the Exact Circumstances Under Which the Performance Is to Take Place

Obviously, each set of circumstances that one might develop will make its own specific demands upon the learner who attempts to accomplish the objective.

The idea is not to end up with several hundred specifications for every objective in each section of a course. The idea is to start specifying clearly the types of conditions under which the student will be evaluated. Once this approach enters a teacher's lesson plans, he will inevitably make his teaching both more concrete and more interesting because of its practical and operational orientation.

Extent - - - An Evaluative Measure of Acceptable Performance

Some of the more obvious approaches are time limits, error counts, percentage correct, minimum number, or accuracy. The emphasis is on the degree of excellence to be demonstrated by the student rather than on how the trainee acquired the ability to perform the skill.

FEEDBACK : Translating This Definition into a System That Permits Teachers to Look over the Shoulders of One Another

Writing objectives in concrete and clear language has been going on for a long time in occupational and vocational education. There has never been any shortage of paperwork documentation in this area.

Too much effort is required to turn out good performance objectives if they are simply going to sit around on a library shelf somewhere. What is proposed here is a method whereby teachers can find out what is being taught in classes similar to to their own. In this way, they will be able to improve their classroom instruction through awareness of what others are doing. This is the heart of any feedback system.

Objectives Evolve Once They Are Written

The question arises, "How does the average teacher with many time-consuming obligations develop his objectives?"

The following section is not meant to give a theoretical model of how to develop performance objectives in the framework of a feedback system. It is meant to tell the story of six teachers who tried to develop a course in auto mechanics. The idea came to them in the course of a one day training session on how to write performance objectives. Most of their feedback was accomplished by exchanging photocopies of their objectives with each other through the mail. These six teachers did not make use of computerized classification and feedback systems. However, the same principles apply to their primitive collaboration as would apply to more sophisticated computerized systems mentioned in later sections.

What These Teachers Wanted to Happen

It would be hard to pinpoint the exact motivation of each teacher. A look at their comments might give some idea of what they wanted:

- "I want to find out how other teachers break this course down into instructional blocks."
- "I want to find out what teachers in a similar type community and school situation are doing."
- "I am not satisfied with my own programs and I want to find out what others have found to work."

In a few brief words, each of these teachers was looking for feedback. The idea of writing objectives was simply a means to get there. The format of performance objectives adds the dimension of percision to this necessary teamwork.

Step One--The Tally Sheet

The first thing these teachers did was to exchange information about course titles and major subdivisions. This soon made it obvious that local situation was a little bit different: each teacher took individual approaches to the same course.

In order to find common territory, each teacher wrote down the major blocks that mapped out the work from September to June. For most teachers, this represented about ten to fifteen major subdivisions within his course.

After this was done, it became evident that there were major terminology variations. A little bit of explanation made it clear that there was about sixty per cent commonality in what was taught by each teacher. Commonality meant that several teachers had similar names and similar content for their blocks. The other course objectives were addressed to local needs and were not always covered by a majority of the six.

It was interesting to note that each teacher had his own particular way of breaking down the subject matter:

- Teacher A relied upon task analysis and job requirements.
- Teacher B tended to have a large number of separate blocks which were centered around each part of the engine and transmission.
- Teacher C seemed to think in terms of marketable skills.
- Teacher D thought in terms of job families and related skills.
- Teacher E felt that students should be exposed to theory first and machinery later on.
- Teacher F didn't give too much thought to course sequence since he preferred to rely on typical production demands as cars came in to be repaired.

Step Two--Awareness of Local Needs

The teachers found out that one way rigid programs failed to meet varying local conditions was by attempting to set up the same curriculum blocks for all schools and by ignoring the necessary adaptations to meet varying local requirements.

At first, three or four of the teachers thought it would be a good idea to have all students exposed to exactly the same instructional goals and nothing else. They thought this would give a sound statistical basis to their work. When the topic of individualization came up, such a monolithic approach was seen to be humanistically unworkable.

Up to this time, local decision making had been on a very perfunctory level. It usually consisted of a number of gimmicks in order to get the largest budget possible. When seen from the viewpoint of six different schools, it often happened that large amounts of money were spent separately by each school to develop identical or at least very similar programs. This was both time-consuming and very expensive; its result was needless duplication for those objectives which were taught by several schools. The same work was done over and over again without being shared with other schools.

The teachers came up with a solution. It was a decision to share common course goals. Goals not common to several schools would not be abandoned or overlooked. The unique adaptations would be based upon educational benefits as the criterion rather than merely cost-accounting.

If a goal or an objective was found necessary to meet local needs, its expensive development price tag would not be considered the reason to postpone its implementation. The economics made in exchanging common core objectives between similar programs would free local funds to focus on meeting local needs.

Step Three--Writing the Objectives

Once the course had been broken down into blocks, it was found helpful to ask this question. "What are the two or three most important objectives of this particular block of instruction?" rather than "Have all the possible objectives for this particular block been listed?"

The reasons for this are obvious:

- Concentrating on a few objectives enabled the teacher to stress educational values rather than paperwork.
- Teachers would then be able to think in terms of the big picture rather than in day-by-day or minute-by-minute miniaturized ideas.
- Feedback will almost be certain to occur. When one teacher saw only one or two principal objectives of another teacher, he began to notice that he himself had chosen another aspect as more important. Since the other teacher was also experienced, he began to ask himself quite seriously who had made the better choice.
- Rather than worry about doing all this writing himself, the typical teacher found out that he was able to share his own ideas and to borrow those of others.
- The emphasis was on selecting the most effective objectives, no matter who had written them. This placed each teacher in the right frame of mind to begin improving his own performance.
- One of the difficulties of the modern communications gap is having too much information. A hundred objectives would have been too much for these six teachers to handle at one time. Two or three objectives every two weeks from each teacher was found to be quite manageable.

Step Four - Bouncing Objectives Around - This is a process that requires the ability to give and take. Sometimes, the teacher defended his own objectives; other times, he acknowledged that his colleague had really done a better job.

Teacher A wrote, "Given a malfunctioning valve, the student will be able to repair it in five minutes or less."

Teacher B wrote,

"CONDITIONS: Given an automobile, reference manual, fender covers, tachometer, and screwdriver,

PERFORMANCE: The trainee will adjust the idle to factory specifications and normalize the engine,

EXTENT: Within ± 25 RPM and demonstrating all safety rules."

Teacher C wrote, "My students will be able to get a part-time job Saturdays after school earning about $2.00 an hour after three months of instruction; they should be able to earn about $3.50 an hour after another three months for a B grade. Those who make more or less will get A's or C's."

Teacher D wrote, "Once the student has demonstrated the ability to do a grease job, he must be able to give snappy service which impresses the customer with his promptness, speed, accuracy, and interest in doing a good job."

Teacher E wrote, "Every student is to be able to tell, in terms of physics or mechanics, exactly why he turns a screw or makes an adjustment. It is not enough to merely do the right repair; the student must always be able to think and to tell why; this proves he has thought."

Teacher F wrote, "The student must realize that after every repair job, the car must be cleaned and given the appearance of being fresh off the assembly line even if this means washing it after an oil change."

Step Five - The Interaction - Without realizing it, each teacher had some insights and some blind spots. In the exchange of objectives via the U.S. Mail, each teacher came to acknowledge a bit more of his expertise and also his limits. Each had something to teach, but also something to learn from the others.

Teacher A - Quality and Time -

Teacher A jumped on the objectives of teachers C, D, and E for lacking any conception of quality and time.

He did admit that his objectives needed more life to make them more interesting to the life style and hazy career goals of his students.

Teacher B - Format and Analysis

Teacher B was congratulated by the group for having devised a format which emphasized the three essential elements of a properly written objective. In general, most of the six teachers approved of the simplicity and clarity introduced by his approach.

Further study of his objectives revealed a few errors that could be easily corrected by proper editing :

- "to factory specifications" should be in the EXTENT and not in the PERFORMANCE section
- "and normalize the engine" should be a separate objective and not tied on to the adjustment of the idle.

This last suggestion was not accepted by all. Some felt it should be an integral part of the idle adjustment while others felt that, for learning purposes, the two should be separate.

As the objective was further analyzed, some felt that safety rules were common to all operations and should be made into separate objectives that could provide the introductory classes in all occupational areas.

Teacher C - Relationship Between Education, Skill, and Income -

It was quite obvious that teacher C did not have much trouble motivating his students and trainees. He himself tried to oversimplify his approach which placed quite a bit of emphasis on getting a job employing the skills learned.

The source of student motivation was not so much money as the growing insight teacher C developed in his students that school can improve skills. Their own practical work experience showed them that skills combined with knowledge of on-the-job opportunities can help a person advance up a career ladder.

In retrospect, teacher C did admit that he actually used other bases for his grades and report cards than student salaries. He also felt that in this area he had been helped by the free exchange of objective criteria now easily available from the other teachers.

Teacher D - Affective Domain -

Most of the other teachers had taken attitudes for granted. It had been assumed that the student would naturally pick up these necessary components of successful functioning in a job.

Teacher D did admit that he needed objectives in the cognitive and psychomotor domains. Until now he had never had a readily available source of them. Rather than have to write all of them himself, he was quite happy to profit from the work of the group.

Similarly, the group was quite interested in the various ways he had accumulated a vast array of practical ways to instill punctuality, cooperative work habits, teamwork, safety consciousness, acceptable appearance, honesty, trustworthiness, care of tools and equipment, compatability with fellow workers and supervisors, responsibility, industriousness, and record-keeping.

Teacher E--Cognitive Domain

Most of the other teachers were impressed by the vast scientific background of E. He had built up a collection of workable slides and models which the other teachers wanted to borrow to use in their explanation of the scientific principles underlying the everyday auto repair skills.

One university and one publishing company approached E and asked him to set up a common core for all occupationa students in physics and to write an illustrated text stressing skill and understanding.

Teacher F--Customer Satisfaction, Job Families, and on-the-job Training

The explanation made by F that students really need little more from a course in auto mechanics than the ability to learn on the job was not accepted at all.

However, his concept of job families was seen as an inevitable outcome of the fact that most humans do want a bit of change after polishing a skill to the point that it can become merely a dull routine from which repetition has removed its first glamor.

AWARENESS : The Possible Advantages and Implications of This Systems Approach Coordinating

- Classroom Teaching
- Evaluation, and
- Feedback

Once a school starts thinking about performance objectives, one of the first questions it asks is "What benefits will our school receive from all this work?"

Once a school starts making specific plans about writing performance objectives, it begins asking another question, "What will happen to all of the work we have put into the project?"

There are many answers to these questions. The following pages are intended to give some idea of the dimensions that begin to operate once a school starts thinking in terms of a systems approach to classroom instruction rather than confining itself to one teacher or to one subject matter at a time.

It must be remembered that local educational agency will have its own individual adaptations and that this listing is only indicative of what to expect in the majority of cases.

Course Content

Schools can identify their course content by specific behavioral objectives instead of by vague general descriptions.

This makes it clearer to both the teacher and student exactly what is expected of each.

Publishing Support eyond Textbooks

Once commercial textbook and media producers are informed of what is needed, they will be quick to solve the media support needs of those performance objectives having the widest market appeal.

Probably, they will evolve a very practical and perhaps simplified coding system that will tell classroom teachers at a glance what can be obtained to make their teaching more effective.

Local Media Support

Similarly, the school library and audio-visual department should be able to precisely identify literature and periodical needs according to the subject matter and number of students pursuing a specific codified performance objective.

When these local needs cannot be met commercially, the local staff can begin to solve local demands rather than merely duplicate areas that can be handled more economically by larger units.

Budgetary Support

Once a teaching-learning media has been found to improve learning, as measured by hard data rather than by teacher-pupil-salesman enthusiasm, it would seem likely that even the most cost-conscious school board will approve appropriations that yield a higher amount of learning per dollar in less time.

This is a simple application of the current stress on accountability.

Revision and Updating of Curricula

Some schools feel it is easier to restrict changes in their curricula to a half-dozen clearly defined performance objectives that need updating rather than to start all over again from scratch.

This does not mean that only surface change will result. It means that a cleare distinction will be made between long range strategies and short range tactics.

Similarly, curricula committees will realize the need to revise yearly rather than merely conducting self-studies every half dozen years or so.

New Curricula

Some schools are requiring that all ne curricula be expressed in performance objective terms.

This makes it easier to make sure ther is not unnecessary duplication. It also avoids needless ambiguity as to exactly wh is being added to the curriculum.

Course Prerequisite

Traditionally, course prerequisites have been expressed in terms of course numbers that must be taken before a particular cours

Sometimes students who have taken a particular course do not have all the specif skills for the next course in sequence.

To prevent this, some schools are spelli our prerequisites in terms of specific performance objectives met rather than in terms of course numbers.

Modular Use of Performance Objectives

A curriculum can be viewed as an assembly of courses each of which contributes to the desired end-product.

This assumes that each essential component can be provided by one or more courses. Depending upon the course content, this may or may not meet the requirements of the student following a particular curriculum.

The construction of performance goals for instruction based on anticipated terminal capabilities allows for the expression of course content in clear and unambiguous language.

A collection of closely related performance objectives is called a module.

As selfstanding building blocks, modules provide a flexibility necessary to prepare students for more precise career ladders.

Modules and Occupational Goals

If course content is identified in terms of performance objectives, the segments of a course can be used in a number of ways. Utilizing such a system, it would be possible to identify the particular welding skills, machine skills, layout skills, or the like, needed for performance in a particular job family. It would not be necessary to take full courses in each area.

This approach would aid individualisation and personal counseling, and realignment of goals would be easier since students would not be locked into a program. Goal aspirations could be modified upward or downward as competencies are revealed through frequent checks on performance.

One form of developing these specifications is known by the names of "performance objectives" or "behavioral objectives." When a group of related performance objectives are grouped together in an instructional unit, a "module" emerges.

Articulation and Feedback Between Schools

Programs in different schools often have the same course names even though the performance objectives actually taught and evaluated are quite different.

Real feedback and program improvement wi be more likely to occur when classified performance objectives rather than course names are compared from school to school.

Tests for Locally Developed Curricula

Once the performance objectives are codified with regard to conditions, performance, and extent, it is possible to apply the same coding to corresponding test items.

Instead of a general test score, each student will receive a profile and a detaile analysis of his strengths and weaknesses.

Teaching Aids

The same coding system can be applied to teaching aids which will be for a specific performance objective.

In this way, the teacher will have something that is precisely tailored to what he wants for a particular objective.

Individualized Instruction

Once the curriculum is thought out in terms of performance objectives and capabiliti instead of in terms of courses, the high schoo counselor is in a position to allow for individual differences by the flexibility permitted after the achievement of each objective.

When such a redesign is complete, it would be possible for a student to learn at a rate that maximizes the benefits of instruction because it takes account of the learner's most effective style of learning.

AWARENESS: The Possible Advantages and Implications of This Systems Approach Coordinating

- Classroom Teaching
- Evaluation, and
- Feedback

Once a school starts thinking about performance objectives, one of the first questions it asks is "What benefits will our school receive from all of this extra effort?"

Once a school starts making specific plans about writing performance objectives, it begins asking another question, "What will happen to all of the work we have put into the project?"

There are many answers to these questions. The following pages are intended to give some idea of the dimensions that begin to emerge whenever a school starts thinking in terms of a systems approach to classroom instruction. A systems approach simply means going beyond piecemeal decision making.

It must be remembered that each local educational agency will have its own individual adaptations. This listing is only indicative of what to expect in the typical case.

Specification of Course Content

Writing a curriculum in performance objective terms is not an easy task. This is a job that takes much time and effort. Here are a few of the benefits that could result from this extra effort.

Schools could identify their course content by specific behavioral objectives instead of by vague general descriptors. Much of the traditional fuzziness in course description would be removed if this approach were used.

Both teachers and students would have a clearer idea of exactly what is expected of each other. Employers would have better guides as to exactly what would be meant by such things as a high school graduate. Rather than specifying four years of attendance, a diploma and transcript would indicate the ability to perform certain activities.

A typical result: Course titles could convey more content information. Stenography I might be renamed Non-Legal Stenography; Stenography might be renamed Legal Stenography if the goals attempted justified such a change.

More Relevant Instructional Goals

Relevance is a word with many different connotations. Basically, relevant instruction is instruction that has some significance or meaning for students, teachers, and society. Irrelevant instruction is just the opposite; it has lost its meaning or importance.

It is an educational truism that instructional procedures which were once relevant can become irrelevant with the passing of time. It's not so much that the instruction has changed; the times have changed and left it behind.

A typical instance: Broad general educational goals are so vague that it is often possible for these goals to remain officially unchanged even in the midst of dramatic classroom changes. The reason is simple: these goals are often so imprecise that it is difficult to know specifically what they envision for student emplementation; goals are often so ambiguous that diametrically opposed student performances can be included under the same umbrella.

Stating a goal in performance terms means that the anticipated student performance is unambiguously stated. Thus, when a different student performance or accomplishment is desired, the goal must be reformulated accordingly to reflect this change of aim.

Revision and Updating of Curricula

Some schools feel it is easier to restrict changes in their curricula to a half-dozen clearly defined performance objectives that need updating rather than to start all over again from scratch.

This does not mean that only surface change will result. It means that a clearer distinction will be made between long range strategies and short range tactics.

Similarly, curricula committees would realize the need to revise yearly rather than merely conducting self-studies every half dozen years or so.

A typical example: Rather than completely revamp the curriculum when a new process is developed, it would be possible to pinpoint all those objectives which involved the now outmoded procedure. Each of these goals would be modified in such a way as to incorporate new tech technological advances. In this way, classroom instruction would be kept up-to-date.

Modules Instead of Semester Courses

In the middle 1800's, the typical curriculum was conceived in terms of a year's work. In the late 1800's, the typical program was broken down into an assembly of one semester or two semester courses, each of which contributed to the desired end-product.

Sometimes, a one-semester course covers more subject matter and objectives of a particular student. The trainee finds himself in the situation of being obliged to take an entire one semester course when all he really needs is the mastery of a half-dozen related performance objectives.

It is not always easy to specify how much of a course a student needs to be ready for entry-level employment. One form of developing these specifications is known by the name of "performance objectives." When a group of related performance objectives are grouped together in instructional unit, a "module" emerges. As selfstanding blocks, modules provide a flexibility necessary to prepare students for more precise career ladders.

A typical example: Students who will need only two or three basic welding skills have often had to obtain them in the past by taking a one or a two semester welding course. Rather than be forced into a situation where lack of motivation could lead to discipline or learning difficulties, a thirty hour welding module spread out over a six week period could do a better job. The particular welding skills, machine skills, or the like needed for performance in a particular field would be identified and taught in a concentrated minicourse. It would not be necessary to take full courses in each of these areas.

Tests for Locally Developed Curricula

A curriculum spelled out in terms of performance objectives would be able to draw upon banks of correlated test items developed and pooled by schools and teachers with similar goals.

In the case of strictly local goals, the school staff would be able to spend more time constructing test items designed solely to measure local goals. Since each of these newly constructed items would be attached to a specific instructional objective, each student could receive more than a total test. Each trainee could be able to obtain a profile and a detailed analysis of strengths and weaknesses.

A typical situation: A teacher of Auto Mechanics would obtain 60% of his test items from other schools covering the same general goals. 30% of his test items measuring local goals would be selected from local files. 10% would be constructed by him to measure his own individual classroom objectives introduced for the first time during the current school year.

Articulation and Feedback Between Schools

Similar programs teaching the same performance objectives in different schools sometimes have different names. Similarly named programs in different schools are often quite different when attention is focused on performance objectives actually taught and evaluated. In other words, course names do not always provide a good starting place from which tow or more teachers can start comparing notes.

Real feedback and program improvement will be more likely to occur when course objectives rather than course names are used as the basis of comparison. In this way, schools could help one another.

A typical example: Teachers of the same course could spell out their principal instructional blocks. These could be further subdivided into units. Once the contents of each unit are spelled out in terms of student skills, comparison would be much easier.

New Curricula

Some schools will not consider requests to introduce new curricula unless these proposed curricula are spelled out in performance objective format. There are several reasons for this procedure.

This makes it easier to avoid unnecessary duplication. It also avoids ambiguity about exactly what is being added to the curriculum. It enables members of various specialties to consult interdepartmentally. This in turn fosters an interdisciplinary approach.

A typical approach: When certain new technology programs are spelled out in understandable and non-technical language, it is possible for existing departments to interface with the new courses in a cooperative and mutually beneficial fashion. If curriculum additions had been presented in jargon, such collaboration would have been less likely to occur.

Course Prerequisite

Traditionally, course prerequisites have been expressed in terms of courses or course numbers that must be taken before a particular course.

It sometimes happens that students who habe taken a particular course do not have all the specific skills needed for the next course in sequence.

To prevent this, some schools are spelling out prerequisites in terms of specific performance objectives to be met rather than in terms of course numbers.

A typical example: Rather than demand the successful completion of Typing I before allowing a student to take Typing II, it would be possible to specify in each local situation exactly how many words per minute the student must be able to type before being admitted to the next course in sequence.

Such a change could have numerous repercussions on the building of career programs and course options since the danger of needless duplication is greatly reduced by precise terminology.

Validation of Methodology

Hunches and serendipity play a role in teaching as in every other area of human activity. When one tries to develop a scientific approach to determine the validity or approiateness of a particular method relying on one's inner feelings is not scientifically enough.

One of the largest difficulties of validating innovative teaching methods is that the unforeseen results of instruction can sometimes outnumber the preplanned objectives. Such a situation is more like an exploratory investigation than a validity study. After sufficient brainstorming and creative discovery, the time comes when it is necessary to check out insights and intuition to verify their effectiveness in educational settings.

Rigorously defined, validity means that a particular method or technique has objective evidence that links it with the attainment of a particular goal. Validity does not mean that a panacea has been discovered which works equally well with a broad spectrum of objectives.

A typical result: When objectives are spelled out in performance terms, the results of methodological analysis will center on finding which means work more effectively in attaining certain highly specified goals. There will be no attempt to find methods which will "work" with any or all goals; there will be no attempt to find ways to "motivate" all students regardless of ability or personality to make progress towards vague general goals.

Similarly, when the desired goal is the exploration of the unexpected, ways will be found to achieve this global shotgun objective which has been defined. Along with the goal, definite criteria of brainstorming such as heterogeneity of response, freedom of expression, and attentive listening will be specified; no room will be left for the possibility of trying to measure creativity by tests which do not go beyond memory and recall.

Budgetary Support

Once a teaching-learning media has been found to improve learning, as measured by hard data rather than by teacher-pupil-salesman enthusiasm, it would seem likely that even the most cost-conscious school board would approve appropriations that yield a higher amount of learning per dollar in less time.

This is a simple application of the current stress on accountability.

A typical example: Funding bodies are notoriously slow to approve "lump sums" even for the most worthy of goals. When teaching expenses can be justified in terms of "what students can now do as a result of instruction," it becomes easier to understand the consequences of approving or disapproving a line item on a school budget.

It would not be inconceivable that the consequences of not funding a particular objective could be demonstrated to be even more expensive in terms of wasted potential human development.

Publishing Support Beyond Textbooks

Once commercial textbook and media producers are informed of what is needed, they will be quick to solve the media support needs of those performance objectives having the widest market appeal.

It is anticipated that a very practical and simplified coding system will be developed to tell teachers at a glance what is available to make their teaching more effective.

A typical example: A teacher of auto mechanics (A-MECH) to students of average (AVER) ability who is beginning a unit on engine (ENG) inspection (INSPECT), will simply print the following on a computer card: "A-MECH, AVER, ENG, INSPECT, LIST, PRICES." LIST tells the company that he wants a computer print-out list of available materials. PRICE tells the company that he wants an itemized price list for appropriate materials helpful to teach this unit.

Local Media Support

The school library and the local audio-visual department will be helped by such classification systems. They will be able to identify literature and periodical needs more precisely. In situations where the budget is tight, the number of students pursuing a particular objective will be able to be taken into account when allocating funds for new items.

Many of the locally taught course objectives will be backed up by media commercially available. This will leave the local media staff with more time and money to devote exclusively to meeting local needs. They will not have to duplicate areas that can be handled more economically by larger production teams.

A typical example: Rather than spend a vast amount of time preparing slides and visuals for those sections of the agriculture course which are taught in many other centers, the local media staff can concentrate on turning out visual aids and documentation which stress local demands. In the case of objectives which might be taught only in one area of a county, this could represent audio-visual aids and support for objectives that might otherwise be overlooked.

Individualized Instruction

Once the curriculum is thought out in terms of performance objectives and capabilities instead of in terms of courses, the high school counselor is in a position to allow for individual differences by the flexibility permitted after the achievement of each objective.

A typical benefit: When such a redesign is complete, it would be possible for a student to learn at a rate that maximizes the benefits of instruction because it takes into account the learner's most effective style of learning. Teachers have long sought such approaches which deliver tailor-made instruction. A systems approach is one way to get this cherished goal.

EDUCATIONAL TECNOLOGY

A typical misapplication of the concept of educational technology has resulted from equating technology with audio-visual aids. Distortions arise because this type of interpretation tends to think too much of technology as equipment.

A more scientific concept of technology goes beyond the hardware level. In education the complement of hardware is not software so much as it is "brainware." Brain-power in educational technology goes beyond the individual teacher teaching alone, isolated in his or her classroom and unassisted with tools beyond textbooks and chalkboards.

New methods of education have to be backed up with new technological advances on a level higher than physical equipment. Such things as team teaching, modular instruction, and the open classroom should be preceived as technological advances. This perspective goes beyond the gadget level.

This step is logical once course goals have been spelled out in performance terms. When technology enters the performance scene, diverse roles emerge as a part of a system where everyone does his part and where a group of people fulfilling different roles work together for a common goal.

Such an approach is particularly advantageous to the school system that starts functioning as a system rather than as autonomous units unaware of what the others are doing. On a broader scale, such a systems approach could conceivably develop cooperation and mutually beneficial feedback between all the school systems in an area, in a state and eventually in a collection of neighboring states.

INDIVIDUALIZED TEACHING

Much stress has been given to the individual student curriculum. Such an approach is based upon the simple acknowledgement that each individual student learns in a different fashion. One of the reasons such an approach to personalized learning has not always succeeded as expected has been the obvious fact that differences in individual teachers have not always been recognized in terms of teacher function, teaching load, and personal teaching style. In other words, all teachers were considered to be practically identical in their teaching style and capabilities, the only difference being subject matter.

Individualized teaching is an attempt to recognize that teachers as well as students have their own individual approaches. Some teachers are good at lecturing to a very large group and can use their semi-charismatic speaking ability to present basic subject matter. Other teachers function effectively only in small groups where their personal contact enables them to achieve many worthwhile educational goals. Other teachers who have not been particularly effective in the instructional aspect of teaching have developed great competencies in such things as test construction and grading.

Once in a while, one meets a teacher who combines all three of these above roles and abilities in one person. This is rare in spite of the fact that the typical classroom sometimes seems to be based upon the assumption that all teachers can function equally well in all three of the above roles.

Individualized teaching simply means that differences between teachers are recognized when a teacher is assigned. Much more than subject matter must be considered in such a way that teachers are assigned to tasks according to their professional skills and accomplishments. A clear statement of course goals in performance terms will go a long way towards ascertaining the teaching styles of individual teachers.

CAREER GOALS : A Self-Initiated
Individual
Choice
That Usually Takes Time

It is almost a commonplace that students educated in a particular career often find employment in an entirely different career. This has led to two approaches to bridge this gap between training and entry job. One approach tries to stress career families and clusters. The other tries to stress self-initiated activities and goals for students within the existing occupational programs.

There is much to be said for teacher-imposed objectives in skill areas. There is much to be said for self-initiated activities to motivate students to learn up to their full emotional and human potential. Career goals are often clarified in an atmosphere which equally emphasizes personal choice and skill acquisition. Any system of performance objectives must take account of objectives that originate from students as well as from teachers.

PERSPECTIVE: Possible Distortion of Performance Objectives and Suggestions on How to Use These Objectives Properly

When an educator starts asking two questions,

- "Why should I write performance objectives?" and
- "Why don't the objectives I write work as well as I expect?",

consideration as to the use and misuse of performance and behavioral objectives has begun.

The format used below to answer these questions is divided into two columns:

(1) the possible distortions that can arise from a misinterpretation of the nature of performance or behavioral objectives, and

(2) the corrective perspective necessary to remedy these misapplications.

Each of these sections is based upon practical difficulties encountered when individual teachers started to write and systematize performance objectives.

1. Behavior

Since behavior here means observable results of learning, it is possible to fall into the trap of measuring only easily evaluated performance.

Advocates of criterion-referenced objectives recognize that not all long-term affective and cognitive goals can be easily measured objectively.

This still leaves open the possibility of improving evaluative instruments by explicitly employing concrete language to state what is meant by a particular goal.

All this goes back to the definition of a performance objective which is a statement of an education goal which tries to answer three questions:

- Exactly what is it that one wants students to do or perform or achieve as an instructional outcome
- What materials and what procedures will best help the student to attain this chosen objective?
- What criteria will reveal when students are performing successfully?

Possible Distortions	Corrective Perspective
2. More Meaningful Statement of Goals Performance objectives strive to express in clear and uncomplicated language the desired outcome of an educational process. Sometimes, this is done in a fashion that discourages exploration of a variety of ways to achieve this specified result. Sometimes, this is done in a way that forgets that certain methods are simply not acceptable socially or economically.	Such things as sample teaching procedures and sample test items are merely offered as examples of how to achieve a goal and how to know when one has achieved it. They are illustrative examples of goals and typical criteria; they are not ukases. Goals should be specified. Once a teacher's goals are known, he can be judged solely on the success he has in achieving clearly spelled out objectives. Questions of philosophy, methods, and personality are seldom as observable as the results of good solid instruction. It must be remembered that merely stating a vague objective in performance objective terms does not do away with the necessity to make philosophical judgments or reasonable cost analyses.
3. Limited Horizons Once a goal is clearly thought out, whether it stresses minimum or maximum performance, it is possible to take it as the only norm of excellence. Other worthwhile but unwritten goals could be overlooked or neglected. In an atmosphere that would stress competition and cost-cutting more than unlimited human development, it is possible to develop the attitude that supplementary and less visible goals can be safely overlooked since they are not as clearly observable as other more basic goals.	Properly understood, the function of performance objectives is to stress the main measurable goals of an educational program. Once these basic goals are attained, students will be properly prepared to go on to other worthy goals that could be of a less tangible nature. The most visible goals of a program do not always contain all desired educational results. To think so would be to pretend that placing a match under a room thermostat is equivalent to providing adequate temperature control. In weight control, the scale is an objective measure of loss or gain, but it overlooks the valuable areas of nutrition and balanced diet. The goal of personal development is difficult to measure. This does not meant that it should be overlooked.

Possible Distortions	Corrective Perspective
4. Time-Consuming Actual data checks of writers of performance objectives in local educational agencies reveal that some teachers have spent more time writing objectives than actually teaching them. Their time and efforts could be spent for more practical educational activities.	This suggestion, laudable as it may be from a research point of view, misses the point behind performance objectives. Translating a curriculum into performance objectives is not so much a construction process as a selection process. Once a bank of objectives is constructed, the teacher will be able to select appropriate objectives and to write from scratch those needed for local curriculum adaptations. Even before this bank is available, a function of the teacher is to select what is most important among the terminal behaviors or performances he wants his students to possess. He is not expected to spend most of his time writing.
5. Duplication of Effort It is conceivable that teachers in separate schools will spend much time writing the very same objectives in the same format. If this process is repeated over and over again, needless duplication results.	Duplication can be prevented by the nature of the feedback built into a computerized system: • feedback of the instructor's course objectives codified and classified • feedback of related course objectives from other instructors and other schools similarly referenced • feedback of objectives from courses with similar names, similar students, similar grade levels, and other helpful variables. After a teacher has chosen objectives that have been codified into the system, it will be possible to retrieve teaching materials and testing items developed by other teachers teaching the same or similar objectives. This look at what others are doing should foster a fresh approach to teaching.

Possible Distortions	Corrective Perspective
6. Centralization It is easy to imagine a teacher becoming intimidated by what the majority of confreres are doing in the same areas. This could lead unwittingly to a centralization more penetrating and more rigid than any ever achieved by administrative fiats.	Such abuse is always possible. On the other hand, much wasted effort results when a good teaching approach or test item developed by one teacher goes unpublicized and unused by other teachers. Practical classroom discoveries are quite specific and often on a low level of generality. It happens that, unless such methods are tied to a specific objective, what works for one teacher will not work for another who has slightly different goals in mind. With a centralized classification system, it is possible to pinpoint what works and what doesn't work to achieve a highly particularized objective. Teachers can share good ideas with one another even when they cannot always generalize to other goals.
7. Paperwork and Window-Dressing Once a person has an answer to a previously unanswerable problem, it is possible to take the result of his challenging encounter and turn it into a technique that can be easily imitated even by people who don't understand it. This is how misapplications occur. Simply re-writing objectives in performance objective terminology is not the same as re-thinking exactly what it is that one wishes to teach.	By filling in the numbers, it is possible for someone with no art training to reproduce the Mona Lisa. This example make it easy to see that there is often more to art education than merely the finished product. A properly constructed curriculum expressed in performance objective terms can enable an instructor to benefit from many advantages: • clarification of his goals and how he can evaluate them • examination of the values upon which he chose present course objectives • presentation of goals to students in a form they can more readily understand

Possible Distortions	Corrective Perspective
8. Too Much Detail and Not Enough Decision In spelling out the desired outcomes of instruction, it is easy to get overly concerned with details and to forget essentials. It is easy to get into a routine that stresses only those things which demand immediate attention such as tests and report cards while forgetting other more important things such as lesson planning and student motivation.	No system is perfect. Every approach can become outdated and perfunctory. A system of performance objectives can contribute to the elimination of unnecessary teacher activity: o Identical objectives that appear in two or more courses can be eliminated; this will demand a decision upon where the goal is more appropriate • The construction of examinations, whether on a unit or on a terminal level, will be simplified; instead of writing all the test questions, the teacher will decide which of the available test items best measure exactly what he is trying to get across in his teaching • When students learn of course goals in terms students can visualize, they will be able to realize how the objectives chosen by their teacher actually meet their needs.
9. Too Much Classification For effective retrieval and usage, performance objectives put into a computer require systematic codification and classification. For the busy teacher or administrator who is thinking only in terms of local needs, much of this can seem like a waste of time.	Basically, any taxonomy classificatio has both a theoretical and a practical value for educators. Theoretically, it places a particular objective in perspective and helps to anticipate difficulties which might arise when an idea is put into practice. Practically, classification systems serve many purposes. Complex classifications based upon prerequisite physical skills and coordination necessary for a particular job require much time. This coding task makes more sense when one realizes how invaluable this would be in occupational counseling for the handicapped.

Possible Distortions	Corrective Perspective
10. Bad Fits	Classification codes will make it easier to get a better fit.
Correlated readings, visual aids, teaching manuals, and test questions have been around for a long time. However, the average teacher who tries to use them in his course sometimes finds that a film or a visual aid is unsuitable for him or for his students even though it worked for another teacher. This does not mean that the film is useless or that one teacher is right and the other is wrong. It does indicate that both teachers have similar general objectives which are quite different when one gets down to specifics.	It's a lot like buying a shirt. Instead of specifying a large collar with very long sleeves, this system would offer more precise choices and combinations: e.g. collar size, 14, 15, 16, 17, or 18, with a choice of sleeves from 33, 34, 35, or maybe 36. Not all students are the same, but conceivably most students would get the same style shirt in his own individual size combination. This is a close analogy to the individualization available from performance objectives. To work, a classification system must zero in on a general area. It must also be codified in a way that will correlate with differences in teaching approaches, learning and local circumstances. A strictly general classification would probably not be specific enough for effective individual applications.
11. Educational Technology	
Many teachers succeed with large group instruction. They give well prepared lectures that challenge and inform the student audience. When such teachers start to think in terms of performance objectives, they find that such considerations as audio-visual aids, test items, observable behavior, and criterion-reference instruction are much too technical for them. These aren't their fields of expertise. When the computer enters the classroom scene, these teachers ask themselves the identity question: "Am I a teacher or an engineer?"	This is a quite natural situation. It opens the door for drastic innovation in the classroom. Rather than expecting the teacher to be a jack-of-all-trades, an integrated system involving performance objectives will require a team approach. Common senses and logic makes it obvious that certain teachers excel in one or more teaching activities. Similarly paraprofessional staff members are also a valuable part of the teaching-learning team. A teacher who can do nothing but lecture will not be left off the team. Such a teacher will have even more time to prepare intellectually stimulating lectures since someone else will take care of tests, grades, and technology.

Possible Distortions	Corrective Perspective
12. Accountability Teachers have fought for quality instruction regardless of its cost. Once a cost-analysis is performed with the aid of performance objectives, it is easy to imagine situations where economy and not effectiveness becomes the dominant consideration.	Cost is one easily identifiable factor in the variables of accountability. Accountability goes into other areas: colleague evaluation, shared decisions, more effective use of a teacher's individual talents and working hours, and more diverse definitions of what it means to be a "teacher." The emphasis in accountability goes beyond cost. It asks the question, "Who is responsible for these results or lack of results?" This is immediately followed by another question: "What can be done to improve the situation?" The answer to this question can result in performance objectives.
13. Academic Freedom Teachers have traditionally demanded the liberty to express their academically honest viewpoints based upon solid intellectual scholarship. It is conceivable that once performance objectives become a dominant factor in the curriculum that this form of teacher power will be subject to a number of pressures that will militate against controversial or innovative individuals engaged in teaching.	Academic freedom is not attacked by performance objectives. Asking a teacher to present his objectives in performance objective terms is not the same as telling an individual teacher that he is not allowed to present a certain intellectual position. Performance objectives are intended to make a teacher intellectually more honest by making his goals intellectually more understandable. An expert in performance objectives avoids saying he is trying to "eschew verbal prolixity and obfuscation." He will say he is "trying to avoid vague and unclear words not understood by the man in the street." Performance objectives force a teacher to distinguish clearly between presenting a personal viewpoint and proselytizing.

Possible Distortions	Corrective Perspective
14. Autonomy When goals are spelled out in everyday language, it is obvious that they will be understood by a broad spectrum of people. Many of these will not be experts in a particular domain. People feel free to criticize what they think they understand. It is conceivable that many non-specialists will start looking over the shoulder of the specialist with suggestions and recommendations. This could begin to resemble the situation where "too many cooks spoil the broth."	Performance objectives do not destroy the autonomy of an educator. They make him begin thinking of how to integrate his goals and efforts into the mainstream of society. Society will not necessarily force him to change his objectives, but it does demand that he clearly label them. This will probably become a reality once objectives are stripped of a semi-mystical language. In the very practical matter of program budgeting, programs which are clearly stated and which make sense to a practical minded though hard-nosed individual will have nothing to fear.
15. Success With a traditional formulation of goals, even the most severe evaluation will not condemn a project because it was not as successful as anticipated. A program which may appear to be unsuccessful can be esteemed in the eyes of the academic community. An example would be a successfully reviewed play which becomes a financial "flop." With the introduction of easily observable performance objectives, it is quite simple for the ordinary man to make his evaluation without any need for scholarly credentials. It can be asked whether or not this will take evaluation out of the hands of the experts and place it in the hands of the man on the street.	Even the best educational program will not achieve all of its concisely stated performance objectives. If none of them were achieved, this does not mean that the program is no good and has to be abandoned. It does mean that success or failure goes beyond what can be specifically defined. If success has been attained, more all inclusive goals can then be proposed. If a certain amount of failure is present, the conclusion should be "These particulars must be improved" and not "The entire program is worthless." It might be a refreshing change of atmosphere to have projects that needed other remedies rather than "more money." The man in the street who pays taxes should understand where his tax dollar goes. This might make him less reluctant to approve budget increases.

Possible Distortions	Corrective Perspective
16. Tenure	Performance objectives are more than a measurement of whom to retain or to dismiss among the teaching staff.
Teacher performance can be thought of in terms of student performance and achievement rather than in terms of degrees and faculty tenure. It is conceivable to think of situations wherein such traditional academic yardsticks will become less prominent in teacher assessment. This could have repercussions on faculties and schools alike. It is easy to think of situations wherein an untenured teacher might outperform a tenured faculty member. Then the question would arise: "Who should be department chairman or supervisor?"	A good teacher would not have to worry about unfounded criticism or about gaining or losing favor since he would have objective evidence in establishing the fact that his classroom performance is up to or above minimum standards. An ineffective teacher would not necessarily be fired because he was below acceptable standards in two or three performance areas. Rather than receive a vague unsatisfactory rating, he would be told of specific needed improvements. He could then be retrained in clearly defined areas.
17. Intangibles: Vague but Valuable Goals	It is not the purpose of performance objectives to de-humanize education.
An educator open to a humanistic value system will often find himself short of adequate descriptors when it comes to putting his goals down on paper. It's not that his goals are unreal and ethereal. It's rather a question of certain ideals that cannot always be adeuqately captured in scientific prose. There is also a certain amount of subjectivity that legitimately deserves a place in education even though it cannto be counted, measured, and parceled out in neat and precise formulas. Such an educator would seem in a precarious position if only highly visible and measurable goals were in vogue.	The purpose of performance objectives is to render an educator's objectives understandable to a broader spectrum of humanity some of whom are more or less talented in abstract verbalization. Any educator with vague but valuable objectives will find himself challenged in the necessary process of interpreting his objectives to his audience. Many a teacher sincerely believes his goals are on the understanding and value levels. At the same time, he uses memory questions as his only measurement criteria for such mundane things as grades. He needs help to admit and to remedy this discrepancy. He can be helped to search out valid measures of high level cognitive and affective changes which are not usually measured by multiple choice test items.

Possible Distortions	Corrective Perspective
18. Minimum Vision One of the advantages of a performance objective is that it sets up a minimum achievement that can be achieved step-by step. One of the disadvantages of setting up a minimum is that by routine and inertia, it can become the accepted norm of excellence. Once the minimum has been attained, it is easier to stop striving and to be content with doing nothing more. Both for the teacher and for the student, this would be a sad state of affairs. It would limit the gifted to the same level of performance as the average or below-average.	Minimum performance objectives are not the only criteria of success or achievement. After one's hunger is assuaged, there is always plenty of room for dessert. Success does not exclude further success. The concept of a performance objective on an elementary level does convey the idea that even the most severly disadvantaged, handicapped, or unskilled trainee or student can do something. They are not doomed to mediocrity simply because they are not on the gifted level. The job of the teacher is to challenge his students without discouraging or coddling them. If he finds that a particular student has achieved the bare minimum with little or no effort, then the job of the professional teacher is to provide goals and motivation that will stimulate the student or trainee to greater accomplishments.
19. Contracts Signing a teaching contract involves several steps. A teacher applies for a job. The local educational agency sits down and evaluates his credentials and experience. If the teacher is deemed qualified, he is hired. The administration places its confidence in him and gives him a teaching assignment. After that, he is presumed capable of deciding what and how he will teach. Performance objectives seem to set up different priorities. There is a wider area of decision making. Such things as detailed curricula, test items, and criteria of success are often themselves the subject of negotiations. With all these legalities, it would seem that a certain amount of legal training would come to be considered more valuable than pedagogical skills.	As real as this objection is, it probably applies more to performance contracting than to performance objectives. It does point out that the two areas are related. Before an educator can begin to guarantee results from his teaching, it is necessary to spell out these results in terms that can be understood by all parties concerned. When a person buys a product in a store, he wants a certain guarantee that it will do what it claims. Certainly, a similar situation exists in education. People want to have some guarantee that the school will deliver as it promises. Performance objectives simply spell out what the teacher is trying to do. Once this is clear, other educational questions can be brought out in the open.

Possible Distortions	Corrective Perspective
20. Working Hours Working hours, the nine to five day seem to be part of society. The school is no exception. There are clearly stated times of attendance and vacation: one for learning, the other for resting. With performance objectives, all this could possibly change.	There is much truth in this objection. This same social phenomenon is happening outside the school as can be seen from the emerging concept of the 4-day week. Schooling is thought of in terms of what one has learned rather than in terms of what one has done in order to learn. It is possible that individual teachers and students will find that they function better outside of the traditional school and timetable. This is not the point in question. Performance objectives are concerned with the task one is trying to do, not with the methods individaully chosen to achieve these goals. In this way, education will be seen as an adventure and not as a confinement inside a school building for a certain amount of time each day. The traditional way of keeping track of school attendance is less important than what is learned.
21. Examinations There do exist certain systems of education where the criteria of success is defined as successful examination-taking. In such situations, the students realize that their academic credentials are concerned only with grades on a final exam, whether written or oral. Such systems have been in force for a number of years. As a matter of facet, the disadvantages of such a method have inspired many of the features of modern classroom instruction as they exist in the United States. Students are ordinarily taught nowadays that there are many other things that are important to an educated person even though they don't appear on the final exam.	The entire issue of the educational worth of examinations is a complex problem. It is rendered even more complicated when one recalls that the results of examination are attached to such units as Stenography I, Business II, or Auto Mechanics III. Each descriptor falls far short of defining definite subject matter competencies or specific marketable entry level skills. Performance objectives do not offer a panacea for this problem, but they do try to develop descriptors that tell precisely what a person will be able to do as a result of passing a particular examination item. It is a lot easier to verify something a person can see than to speculate whether or not a person knows or understands something.

ACCESSIBILITY

Finding Out

What Other Educators

Are Doing

THE FIRST STEP : How to Start Writing Performance Objectives

Whether or not there are a large number of teachers who have started writing performance objectives for their students is a question open to discussion.

Once one defines a performance objective as a formulation of an educational goal spelt out in terms of measurable performance as its criterion, it is obvious that thousands of teachers have done the necessary thinking and deciding to develop criterion-reference goals for their classroom activities.

Because much of this work has occurred without feedback from other teachers in similar courses, a great amount of educational planning has been done over and over again in a way that resembles the repetitious activities of Sisyphus.

The Working Force for This Project

At the present time, there are thousands of teachers who are spending long hours preparing their classes.

Whether these teachers realize it or not, all the work they do to develop interesting lesson plans, well thought out test questions, and practical teaching aids are really part of performance objectives.

They have done enough work to provide a sound basis for educational innovations. Only one thing is missing: they have not provided a method of recording, classifying, and evaluating all their work.

Because this work is repeated over and over again without feedback, it is much like a book misplaced in the library. For all practical purposes, it is lost.

The First Step - Write Only One Objective

In order to get teachers to start writing performance objectives, it is absolutely essential that they do not write too much.

The important thing is not to write hundreds of objectives for a particular course, but to write one or two carefully chosen objectives that stress principal goals of a particular teacher for a particular group of students.

It would be better for a teacher voluntarily to write in half an hour one performance objective which is clearly understandable than under duress to write hundreds of performance objectives which are more paperwork than practical teaching and learning guides; besides, all this needless writing would take too much time.

Format

Sooner or later, a group of teachers will want to develop a uniform format on which to record and write performance objectives. A later section gives one of many possible formats.

The format eventually chosen should reflect two things:

- local needs
- compatability with a feedback syst

Then Pass It Around for Comment

Once an objective has been written, i would be given to colleagues and to studen

Any difficulty they might experience understanding precisely what he meant woul force the teacher to get rid of vague word such as "know" and "understand." This rig critical audience would force the teacher express his objectives in concrete terms.

For example, if he knew he was going rely on fill-in questions as his sole evaluative criteria, he would have to say that his observable and measurable goal wa "the ability to recall from memory well enough to answer fill-in questions" instea of saying that he wanted his students "to really know" his subject matter.

Another example: if he claimed highe goals such as "creativity" or "deeper understanding," he would be forced to ask himself, "How am I going to measure these outcomes which cannot be ascertained from strictly recall questions?"

All of this would have to take place before the course began and not just before the final exam.

An Aid to Evaluation

A teacher is asked to write merely one performance objective, not to give him more paperwork, but to get him to ask concrete questions about exactly what he is expectin of himself and of his students in the classroom.

Once a teacher puts his objectives in terms that can be recognized by the average man on the street, he will find out two things:

- he will get suggestion after suggestion on how to improve either his goals or his methods or his evaluation techniques, and
- he will begin coming up with many improvements himself.

It's similar to a situation wherein one starts competing with oneself, it's hard to remain satisfied even with above average results.

This seems to be the motivation in golf where both pro and amateur keep getting better or worse because there is a very visible method of keeping score.

The Second Step - Correlate One Test Item with a Well Written Objective

Once a teacher has written one performance objective, he will know the difference between vague and precise terminology.

The next step would be for the teacher to take the best test question off his last examination and try to identify which objective is being measured by this test item.

After this has been done, he would ask his colleagues and students to tell him whether or not this item is measuring understanding or merely memory recall.

Professional Growth

It is a revealing experience for a teacher to struggle with the uncertainty that arise from a few simple questions:

- "Which course objective does this test item really measure?" or
- "How does one construct a way to measure the creative goals of this course?"

After a few hours alone with these questions, the teacher will realize that he needs feedback: he needs to know what other teachers of the same and similar courses are doing.

He will then be in a position to lear from them their secrets of success to shar with them what he has learned from persona experience.

The Third Step - Start to Rate and Classif Objectives

Once the teacher understands the conc terminology of performance objectives and how to relate them to test questions, he is ready to start choosing the most import objectives of his course.

These objectives need not necessarily be perfectly written and unalterable.

Even if imperfect, these objectives w allow the teacher to make comparisons and revisions.

Once his objectives are codified by subject matter, he will be able to compare his objectives with those of other teacher of the same material.

The Fourth Step - Tie Objectives and Tests, and Media Together into a System

Once he starts getting feedback from other teachers about their objectives, he will be able to use tools they have found successful. This would include:

- test items,
- evaluation instruments,
- instructional media,
- other techniques.

The Fifth Step - Start Using the Performance Objective Code Number

In the same manner, once a subject matter is divided into a carefully codified set of objectives, the teacher is able to apply the same code numbers to teaching aids and other educational brainware and hardware.

Thus, when the teacher has chosen a particular objective for his students, he will be able to obtain a number of helpful teaching tools:

- teaching aids,
- classroom projects,
- lesson plans,
- classroom activities,
- supplementary reading,
- testing, and
- evaluation instructions by means of one code number.

In the same way, with the same code number the student will be able to obtain similar learning

- individual assignments according to his ability and interest,
- projects developed especially for him,
- study guides designed with his ability and interest,
- projects developed especially for him,
- study guides designed with his abilities and strengths in mind,
- extra tutoring when and where it is necessary, and
- a profile of his marketable skills which achievement of a particular objective will give him.

The Sixth Step - Ongoing Activities

This section has stressed only a general overview of the first steps necessa to start writing performance objectives in a systematic way.

It takes a lot of time and work to mak these initial extra efforts for the benefit of a system. The next section on the benefits of a carefully developed system will show a few of the long-range advantage of this extra care when a teacher begins writing.

REPORTING FORMAT : The Question With Many Possible Answers and Approximations

After all the theorizing and deciding is done in a school or in a department about to start writing performance objectives, one common question arises, "What uniform format will satisfy all of our needs?"

Typically these needs include various possible uses to which the objectives will be put : ease of writing, possibility of editing, reproduction either by copy machines or by computer print-out, coding for retrieval and cross-reference purposes, ability to be used for developing a tally and picture of the structure of what is actually taught in a particular area, built-in research and evaluation potentials, and demands of both teachers and students.

This makes a lot of decision necessary even before the first objectives is ready for writing or entry into the system.

DISPLAY

Form #9

EVALUATION SERVICE CENTER
FOR OCCUPATIONAL EDUCATION

Behavioral Objective Reporting Form

Code No. ______________________________

Field of Study ____________		State ____________	
Major Group ____________		School ____________	
Sub Group ____________		Instructor ____________	
Block ____________		Facilitator ____________	
Unit ________	No. ______	Level ____________	
Instructional Time ____________		No. Taking Obj. ____________	
		School Year Written ______	

Behavioral Objective

Condition(s) ______________________________

____

____

____

Performance ______________________________

____

____

____

____

____

____

Extent ______________________________

____

____

Direct Prerequisite Unit(s) ______________________________

Direct Dependent Unit(s) ______________________________

Exit Behavior (Check One) Yes [ ] No [ ]

All These Forms Begin to Look Alike

After reviewing a typical behavioral or performance objective reporting from, one can begin to think, "They're all pretty much alike."

Closer examination will show that this is true as far as conditions, performance, and extent are concerned. However, even such common elements as subject matter code show many possible variations both in code and in theory behind the code.

Don't Get Tied to Non-Essential Details

Form #9 is presented merely as an example of what one evaluation service center has done.

Each of the entries on this form was no doubt the subject of serious and prolonged discussion.

Going through the information it codifies will serve as a good introduction to the basic requirements of the typical reporting form.

An Item by Item Analysis

Code No.

This is a summary in numeric form of the following information which specified a number of things about the objective: field of study, major group, sub-group, block, unit, sub-unit number, instructional time, direct prerequisites, direct dependent units, exit behavior potential, capability classification, and related disciplines; also in the local writing domain: state, school instructor, facilitator, level, number taking objective, and school year written.

Field of Study

Major Group

Sub-Group

These refer to the first six digits of the USOE subject matter code.

Example: 17.0000 indicates the field of study (trades and industry).

17.0300 indicates the major group (automotive industries).

17.0302 indicates the sub-group (mechanics).

Block

Unit

Number

These refer to the 7th, 8th, 9th, 10th, 11th, and 12th digits added to the basic USOE code for subject matter.

Example: 17.03020400 could refer to engine; 17.03020600 could refer to brakes; 17.03020800 could refer to chassis.

Thus, each sub-group would be broken down into blocks (7th and 8th digits).

Similarly, each block would be broken down into units (9th and 10th digits).

Example: 17.03020406 could refer to six-cylinder engines; 17.03020408 could refer to eight-cylinder engines.

When necessary, further sub-divisions would be possible through the use of other numbers (11th and 12th digits).

local reasons for a particular umber must be kept in mind to avoid wo extremes of too general or too minute a classification of course goals.

CAPABILITY CLASSIFICATION

Psychomotor

☐ Psychomotor (Check only if performance requires a significant amount of muscular activity).

Cognitive

(Check the one cognitive capability that best describes the mental activity involved).

Knowledge Acquisition

☐ C1.1 Knowledge of Specifics

☐ C1.2 Knowledge of Ways & Means of Dealing with Specifics

Knowledge Application

☐ C2.1 Knowledge Application Without Alteration

☐ C2.2 Knowledge Application With Alteration

Related Subject Discipline (Check those applicable)

MATHEMATICS

Elementary School Mathematics

☐ Basic arithmetic & operations
☐ Informal algebra
☐ Informal geometry

Mathematics (7th & 8th grades)

☐ Applied arithmetic
☐ Geometry & measurement
☐ Algebra, graphs, problem solving

Secondary School Mathematics

☐ Algebra (first year)
☐ Algebra (second year)
☐ Algebra (third year)
☐ Geometry
☐ Trigonometry
☐ Business Arithmetic
☐ Consumer Mathematics
☐ Shop Mathematics
☐ Calculus
☐ Computer Mathematics

OTHER
(Specify)

☐ ____________________
☐ ____________________
☐ ____________________
☐ ____________________

SCIENCE

☐ General Science

Biology

☐ General Biology
☐ Anatomy
☐ Bacteriology
☐ Biochemistry
☐ Ecology
☐ Nutrition
☐ Physiology

Chemistry

☐ General Chemistry
☐ Inorganic Chemistry
☐ Qualitative Analysis
☐ Quantitative Analysis
☐ Materials Science

Physics

☐ General Physics
☐ Electricity & Magnetism
☐ Electronics
☐ Heat
☐ Mechanics
☐ Nuclear Science
☐ Optics
☐ Solid State Physics
☐ Sound

DISPLAY

State

School

Instructor

Facilitator

This information helps identify the source of the objectives (state, school which would include school district in its code, instructor who wrote, and facilitator who did the first editing).

Level

This code tries to answer a few simple questions:

- What is the level of the program?
  - pre-vocational
  - secondary
  - post-secondary
  - other
- How many years long is the program?
- At which year in the program is this objective offered?

Number Seeking Objective

This code tries to estimate how many students will be exposed to this objective from two viewpoints:

- How many students are enrolled in the course?
- How many students will probably be exposed to this objective? This latter case will be only an estimate in situations where production (number of jobs entering the school shop) is a prime consideration.

School Year Written

This information will be used for output concerning popularity and longevity of a particular objective.

The Heart of the Objective

Conditions

The circumstances under which the students are expected to perform constitute the conditions of an objective.

Conditions are expected to clarify such specifics as:

- Do students have access to standard tables and texts or to memory only?
- What tools must be used:
- Will trainees be tested under school quiet or industrial stress?

Each of these conditions obviously makes its own special demands upon the objective to be performed.

Performance

Performance means doing. The performance of an objective is what the student is expected to do.

- This performance must be measurable.
- One of the best ways to assure measurability is to insist on a observable and easily visible performance.
- That is why such indirectly observable activities as "know, understand, and comprehend" should be replaced with more visible verbs such as "change, repair, adjust, cut out and assemble."

Extent

The minimum acceptable standard of achievement constitutes the extent or level of performance.

There will be an anticipated differenc between the functioning of a master mechani and the best student after a one-year cours

Certain jobs will require stress on a number of factors including quality, errors tolerance, percentages, and time. All of these must be spelled out as the criteria on which the performance will be judged successful or unsuccessful.

DISPLAY: CODING LABEL

SEQUENCE NO	YR	T	N	C	STATE	CITY - SCHOOL	LVL	RELATED SUBJ. DISCIP	CAP. CL	NO. TK.

FL	GR	SG	BL	UN	OB	EX	TIME	PREREQUISITE UNIT(S)	DEPENDENT UNIT(S)

Once a coding system has been decided upon, it is possible to simplify the classification information by numeric codes. The following information can be inserted into the above tape :

Sequence Number -- a temporary number used to keep track of input before keypunching

Year -- the year the objective was written

Type -- objective, test item, or media

Number -- first card, second card, third card

Continuation -- double check for second and third cards

State

City

School

Level

Related Subject Discipline

Capacity Classification

Number Taking Objective

Field

Group

Subgroup

Block

Unit

Objective

Exit Level

Time

Prerequisite Unit(s)

Dependent Unit(s)

Direct Prerequisite Unit(s)

This is the answer to the question:

- Which objective or objectives must be successfully completed before attempting this new unit objective?

Direct Dependent Unit(s)

This is the answer to the question:

- Which objective or objectives should sequentially follow the successful completion of this unit objective?

Exit Behavior

This is the answer to the question:

- Does successful completion of this objective give the trainee a marketable skill for entry level employment?

Capability Classification

This section is a check-list in three areas: psychomotor, cognitive, and related subjects.

Psychomotor

This is an attempt to answer the question:

- Does the accomplishment of this objective involve a significant amount of muscular activity?

Cognitive

This is an attempt to answer the question:

- Does this objective stress acquisition or application of knowledge?

- In other words, is this objective based more heavily upon memory or upon higher mental functions in its cognitive component?

Related Subject Discipline

This is an attempt to answer the question:

- Where does this objective tie into basic education as far as math or science is concerned?

Hindsight

The careful reader of the above description of the typical behavioral or performance objective reporting form will notice two missing items:

- there is no place on the reporting form to prescribe how the objectiv in question is to be taught

- there is no place on the reporting form to prescribe how the objectiv in question is to be measured.

The reasons are simple:

- Rather than specify specific means, method, or procedures, a performanc objective leaves open a number of paths to its accomplishment

- Rather than specify specific test items to be used to measure an objective, a performance makes it crystal clear by its conditions, performance, and extent exactly what is to be measured.

- The emphasis is not on a particular thermometer test item which may or may not always function correctly but on the standard of excellence expected of the successful trainee.

- Once excellence has been defined in clear cut terms, it should be much easier to achieve and recogniz

THE NEXT STEPS : Starting to Think in Terms of What a Computerized System Can Do That an Individual Teacher Can't

It is almost axiomatic that teachers have dreamed dreams that other teachers have fulfilled in later centuries or in later generations.

With the aid of modern and existing computer technology, the modern teacher can see a portion of his dream come true in his own lifetime if not in a year or two.

Going onto an automatic data processing or computerized system will not work miracles, but it will save hours, days, weeks, and even months of routine clerical tasks that must be done to achieve the kind of feedback that answers the simple question, "Did my teaching accomplish what I set out to do?"

DESISIONS TO MAKE

COMPUTER REQUIREMENTS

Here is an outline summary of things to be done to computerize the evaluation service center.

(a) Objectives Onto Tape

-- format of printout
- ○ Code
- ○ Condition
- ○ Performance
- ○ Extent

-- ability to edit content -- proofread and revise content

-- ability to add other classifiers

-- Ammerson Melching
-- others needed

-- restructure USOE and content codes

(b) Cross-reference of Test Items

-- Code

-- Different forms of same test

-- Levels of difficulty

-- Alternate forms

(c) Immediate Statistics

-- Time Standards Option
(Formulas I, II, III)

-- Test Correction Option

-- Profiles Individual, Class, Teacher, Course Program, School District, State

(d) Item Analysis (Exactly What Will Be Analyzed)

DISPLAY

Decisions to Make

In some ways, the transition from dreams to reality comes naturally and when one starts to make decisions.

There are many areas to think over, each of which requires an amount of specificity that takes time to achieve:

- how to get the first versions of the performance objectives onto computer-readable format
- how to cross-reference the test items and other media support in a way that will facilitate both entry and retrieval in a variety of formats
- how to articulate the entire system in such a way as to provide immediately necessary statistics and long-range information needs
- how to decide the type of item analysis required by the local educational agency and consistent with its budgetary limitations
- how to decide which student characteristics are necessary for later research and correlation studies to determine differential effects of various objectives
- how to decide on which ongoing activities will receive priority or long-range status.

Each one of these decisions must be broken down into a number of specifics.

The following sections will look at each of them in turn.

From Paper-and-Pencil to Computer-Readable

Consideration must be given to two types of format:

- the format filled out by participa teachers, educators, and all other sources of objectives
- the format of the computer print-o which must be mass-distributed and frequently referred to in the editing and selection process

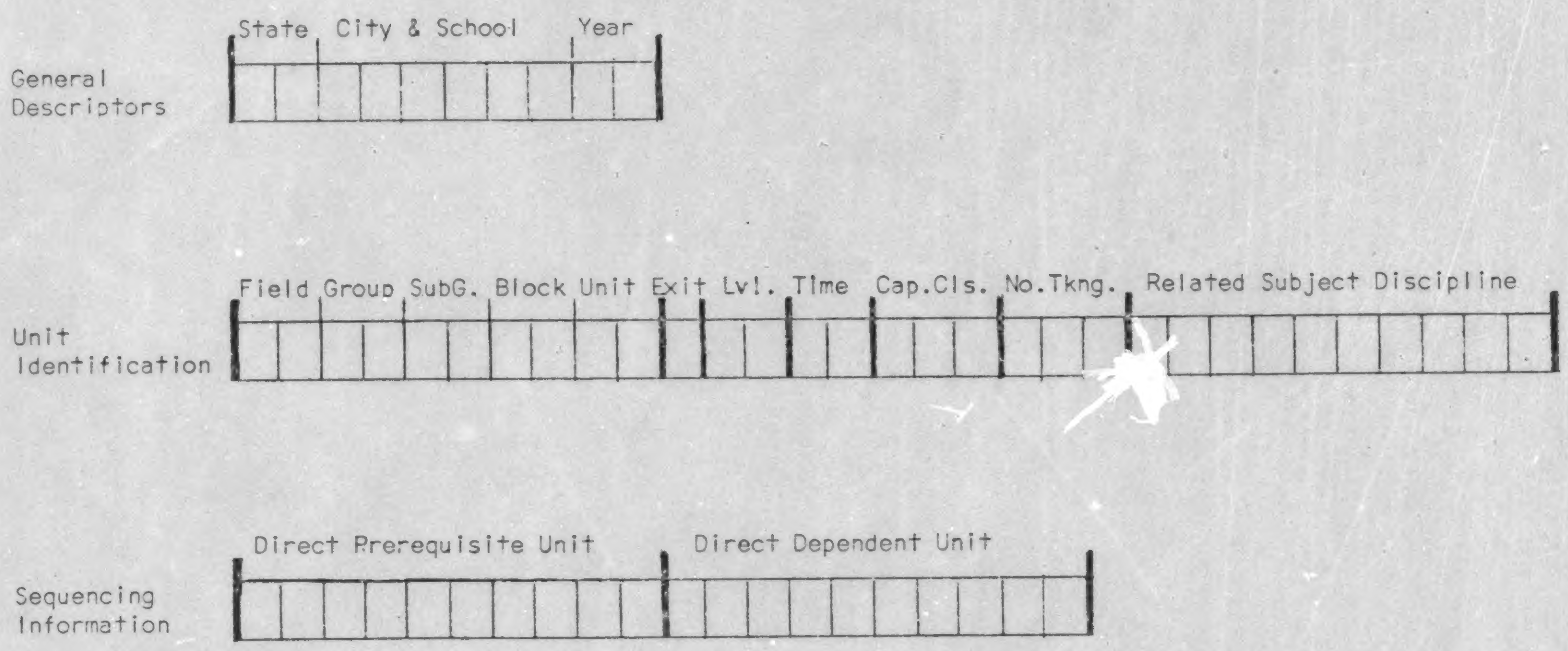
This will facilitate a number of thin necessary to keep the item and objective bank active and up-to-date:

- editing (major changes)
- revisions (minor changes)
- additions (new entries)
- updating (constant renewal)
- broadening (humanistic goals).

Software Considerations

Some questions will be on a rather mundane level:

- Should we use straight keypunching or a combination of other methods to enter corrected data?
- Should this be done by physically transporting the objectives or by a computer terminal and a long-distance phone call?
- How can cost and system requirement be optimally balanced?
- How much confidence can we place in students, teachers, and administrators who will provide the balk of the input data? Must they be constantly supervised every step of the way?


State
City & School
Year
General Descriptors
Field
Group
SubG.
Block
Unit
Exit Lvl.
Time
Cap.Cls.
No.Tkng.
Related Subject Discipline
Unit Identification
Direct Prerequisite Unit
Direct Dependent Unit
Sequencing Information

Proposed Code Number Structure

DISPLAY

Basic Cross-Reference Categories

Despite individual school needs, most local educational agencies will find it convenient to employ three general areas of cross-reference:

- short-range general descriptors
- subject matter classifiers
- long-range sequencing indices

Verbal or Numeric Descriptors

Verbal descriptors refer to words or abbreviations employing the normal alphabet.

Numeric descriptors are a combination of numbers, letters, and symbols which are not usually derived from everyday language.

As a practical norm, it is safe to say that both will be used by most coded cross-reference systems:

- verbal descriptors will be used by teachers and supervisors as they write objectives
- numeric descriptors will be used by editors and systems specialists who prepare the objectives and items for entry into computer-readable format

Illustration (Refer to Sample on Left)

Rather than devote unnecessary computer memory core to names of states, schools, and fields of curriculum, all these areas will be covered by appropriate numeric codes which can be entered into code number structures such as that illustrated on the left.

Examples: Typical General Descriptors

These would include such things as:

- state
- city
- school
- year objective was written
- teacher or teachers who write it

Examples: Subject Matter Identification

Subject matter or teaching unit identification would be based upon such things as the USOE code:

- field (1st two digits; e.g. 17.0000 would indicate Trades and Industry)
- group (3rd and 4th digits; e.g. 17.0300 would indicate Automotive Industries)
- subgroup (5th and 6th digits; e.g. 17.0301 would indicate Body and Fender)
- block (7th and 8th digits; e.g. 17.03010300 could indicate Body Repai
- unit (9th and 10th digits; e.g. 17.03010307 could indicate estimating costs)

There are also other considerations:

- exit (whether or not entry level job skill)
- level (type and level where offered in school program)
- time (amount of instructional time envisioned to teach objective)
- capability classification (cognitive, affective, or psychomotor domain)
- number taking objective (how many students seeking this goal)
- related subject discipline (related natural science or math background)

Examples: Sequential Information

This is an attempt to determine two things:

- direct prerequisite units or objectives necessary
- direct dependent or sequential objectives after present goal

This will help determine which elements of the curriculum follow each other from two points of view:

- what is actually taught in a particular order by teachers
- what is actually learned in terms of student acheivement over a period of time
- which goals must be achieved to succeed on a particular objective
- which goals are appropriate for a student who completes a sequence before, with, or after the majority of other students

Cross-Referencing Is Never Left Unrevised

The constant necessity to cross-reference and to retrive information on a variety of variables demands the ability to add other classifiers as the need might arise.

- This could occur when a new break-through occurs in developing a successful classification system by a team of basic researchers.
- This could occur when another bank of objectives is placed en masse into an existing classification.

Such codes as the USOE system (six digits) will undoubtedly be used in the initial input. When such codes are found inadequate in their seventh to tenth digits, it will be necessary to change the affected code digits. For the first time, data will be available with which to make these necessary corrections.

Immediate Statistical Needs

These needs can assume a variety of forms.

When a teacher starts working in the area of performance, he or she will find that certain theoretical bases of trainee success will assume different forms:

- the normal distribution curve will not always be appropriate for measuring the success of students on objectives which every student is expected to achieve 100 per cent
- a distribution of learning times is to be expected; this will give rise to the following situations:
  - teachers will need additional later skill objectives or additional higher skills to correspond with variations in trainee learning time
  - if learning time remains a constant, then each objective will have to have a number of levels of accomplishment from basic minimum to more advanced skills

Rather than rely upon traditional prete and post-test measurements, the accomplishme of performance objectives requires the stres upon growth or gains rather than relative position on a normal curve:

- the measurement of gains will be difficult from a normal pretest situation since it could be physical dangerous to pretest trainees on certain heavy equipment
- the actuarial measurement of gains would also be necessary since not all trainees would be expected to grow or change at the same rate
- the measurement of gains will probably center upon periods of time within the structure of a course; e.g. tests will be given when a trainee is safely able to operate a machine on his own as a quasi-pretest to be compared with a post-test measuring the effect of additional instruction

ITEM ANALYSIS

- The evaluation service center will develop a number of Objectives classified on a variety of categories.

- Each objective will have a unique identifier:
  This will be a code number which includes among other things:
  - USOE code number (subject matter)
  - domain (cognitive, affective psychomotor)
  - other cross-identifiers and cross-classifiers

- After the first year of testing, each objective will have corresponding test items with coded cross-references based on a number of things with the ability to make the items more individualized and more accessible :
  - level of difficulty
  - predictability on next sequencial objective
  - Guttman Scale
  - success group correlated (with student characteristics)
  - gains scores
  - list of entry level occupational skills per child

SUMMARY

One Unit:

Code	Objective-Item	Statistics	Media	Prescriptions	etc.

DISPLAY

Examples of Possible Statistical Services

The limits of the human imagination seem to the principal limitations of the statistical possibilities of computerized data services.

Here are a few of the many service packages that come to mind:

- time standards option whereby the teacher could receive pretest and post-test information in three different configurations:
    - i peer group standards for quality and time
    - ii industrial standard for quality and time
    - iii industrial time standard for maximum quality only
- test correction option whereby the teacher could submit the answer cards or sheets of the students via an on-line computer telephone terminal and receive the results a few minutes later through the same terminal
- student profile options are available for a number of things such as attendance reports, student report cards, automatically updated student records and transcripts, as well as profiles of progress along such dimensions as:
    - individual student
    - class average
    - teacher load
    - course program
    - individual school
    - department
    - school district
    - State

Item Analysis

Once each objective is coded, it will be possible to develop cross-references with such variables as:

- level (level of difficulty, level of previous training, level where the objective will be offered in school program)
- predictability (trying to find where future successes are highly probable as a result of success on a given objective)
- Guttman Scale (one of the many attempts to scale items with a corresponding level of skill)
- Success group correlation (trying to find out which groups or which studen characteristics are highly correlated with success on particular items)
- gains scores (trying to develop actuarial tables along a variety of cross-referenced student and program variables)
- entry level occupational skills (trying to establish interfacing of classroom objectives with such things as computerized Job Banks and inventories of marketable skills)

Item analysis is not an end in itself, but it is a good instrument of action once a local educational agency has decided what t do with all the decision making data it has collected.

DISPLAY

STUDENT RECORD VARIABLES

Each student will have a unique identifier based upon:

- State
- School District
- School
- Date of birth
- Social security number
- Intellectual ability
    - I.Q.
    - Class rank
    - Other test scores ---- indicates areas to be further analyzed.
- Physical condition
    - Good health
    - Handicapped
    - Attendance record
- Socio-economic
    - Family
    - Parents
    - Siblings
    - Disadvantaged
    - Minority group membership
    - Career goals: 1. undecided 2. definite
    - Drop-out potential
- Learning record
    - Class rank decile
    - Track in school
    - Disciplinary
    - High school grades
    - High school grade point average
- Occupational record
    - Field
    - Time in field
    - Grades in field ---- grade average in occupational area
    - Number of courses
    - Part-time job
        - Related to field
        - Non-related

SUMMARY One Unit:			
	Student I.D.	Background	Performance

Student Records

At the present time, there are a number of automatic data processing services that provide attendance reports, student records and transcripts by the simple act of pressing a computer button.

Each of these services is justified on its own merits.

The idea of this section is to suggest trying such existing information units together into a compatible system.

Why Bother to Develop Such a Complication

An example easily comes to mind. The Vocational Education Act of 1963 was aware of the needs of students with academic and socioeconomic handicaps. The 1968 Amendments made the disadvantaged a top priority item by requiring that 15% of the basic Federal allotment be used for them.

There are many ways to identify the disadvantaged; not all of them are satisfactory but here are a few of them:

- academic disadvantage
    - mental ability (I.Q.)
    - lack of school success (doing poorly or failing)
    - dissatisfaction with school
    - irregular attendance
- socio-economic disadvantage
    - poverty
    - occupation of parents
    - disadvantaged neighborhood
- cultural disadvantage
    - family size
    - migration
    - parents' education
    - marital status of parents
    - minority group membership
    - neglect
    - linguistic isolation
- other disadvantages
    - physical
    - emotional
    - delinquency

It is obvious, when one considers such factors as minority group membership and parents' education, that such potential sources of disadvantage do not always irreparably harm each individual even though they may work against some.

The Practical Concern Here

The point under discussion when one trie to define disadvantaged in concrete terms is not whether or not a particular item or a combination of tiems is an adequate definition.

The more general area of concern is this

- Can objectives be analyzed in such a way that various student characteristics will be found correlated with success on these objectives?

- Can all of this be economically done by means of computerized data systems that will merge as needed files on test data and student records that have up to the present been kept separate?

Looking Ahead - Ongoing Activities

Once a teacher starts using a system of performance objectives, related test items, and other cross-referenced educational support tools, he soons finds out that he wants more.

Specifically, these usual demands touch the following general areas:

OBJECTIVES

- revisions (minor changes in words, contents, and nuances)
- editing (major changes in ideas, conditions, performances, and extent, and objective specificity)
- additions (adding more objectives to fill in missing areas in subject matter and curriculum)
- updating (replacing outdated objectives as the state of the world of labor demands newer techniques or newer procedures for entry level employment)
- broadening (adding more objectives to fill in necessary training goals by due attention to a balance of cognitive, affective, and psychomotor goals needed by trainees)

TEST ITEMS

- more test items (alternatives and new approaches to avoid the temptation to teaching to the "same old examinatio
- item analysis (replacement of defective items and development of basic statistic on such things as level of difficulty or discrimination)

CURRICULUM

- auditing (finding out what is actually taught under the same course names across one of several states)
- structuring (establishing the order of objectives based upon research on differential student achievement)

INDIVIDUALIZATION OF INSTRUCTION

- assessment (giving a student or trainee an idea of where he is in terms of objectives accomplished in relation to entry level skills, to starting salary, and to style of learning)
- direction (giving a student or trainee some specific idea of what he can do next with great probability of success and of where this will lead him)
- tailor-made objectives (showing a student where people with his type of achievement and personal traits have succeeded)

CURRICULUM : State Syllabus ?
or a Tally of What Is Actually Taught
in the Classrooms across One or More States !

On the level of existing printed syllabus, there is little doubt about what is being taught across a state. Fields of study are broken down into major groups, minor groups, and blocks. On the local level, these blocks are broken down into courses, units, and day-by-day classroom instruction.

Because the generality of the state syllabus is designed for a wide audience and because the specificity of the local implementation is adapted to a more specialized clientele and job market, it is no great surprise to find a different point of view when tallies of performance objectives are compared with state curriculum guides.

THE PRECISE NATURE OF A STATEWIDE SYLLABUS

A Delineation of Both Its Strengths and Limitations for Occupational Education

A state syllabus or a statewide curriculum guide is a multi-faceted tool:

- Often, it is the result of a committee of the most prominent teachers chosen across a state.
- This means that much of the committee time must be spent defending local interests and making sure they are represented in the final document.
- Limitations of time and printing budget mean that certain local programs that could be successful in half a dozen or more other similar communities must be left out because they will not fit into the patterns of thirty or forty more typical situations.
- Since the same objectives must be made to work in a school which offers fifty or more occupational programs and in a school which specializes only in one, there will be a certain amount of anticipated abstraction which must be adapted by local educational agencies.
- When educational leaders get together to put out a curriculum guide, it can be assumed that it will incorporate the latest advances available at the time of writing.
- One disadvantage of this approach: States of technology will not sit still until the next curriculum revision.
- Another disadvantage: "Me-too" schools which lay out a lot of money for a 1970 shop in 1971 will be little inclined to spend more money to install a 1972 version until the 1973 version is recommended in the 1975 revision of the curriculum guide; the time-lag gap still persists.

THE WORK LOAD OF THE CLASSROOM TEACHER

There Is Only So Much One Person Can Do No Matter How Important the Priority Is

The classroom teacher has no shortage of things he must do:

- he must be in the school from eight until four; his so-called free periods can be eaten up by:
    - prefecting assignments
    - papers to correct
    - noise in the school
    - administrative paperwork
    - a variety of stressful priorities
- he must be with students twenty-five periods or more a week
    - this requires his full attention while in the classroom each day
    - this requires adequate lesson planning before coming to class

Confrontation with the State Curriculum

There are a number of ways in which the classroom teacher can be given additional work because of the State syllabus:

- his students must pass exams based upon common objectives
- his lesson plans must be written in such a way as to make obvious how they implement the curriculum
- his supervisor is often more familiar with state demands and criteria than with the objectives chosen or derived by the individual classroom teacher himself
- his colleagues will sometimes tell him, "Even if it's out-dated, teach it since it will be in the final exam or on the inspection report."

Such a framework is the opposite of the one herein proposed. This proposed structure is intended to shift the teacher's role from that of spectator to that of participant.

Where Do All These Difficulties Come From?

Rather than go around suspecting the motivation of curriculum writers on the State or the local level, it might be a good idea to admit a very well known but unpublicized fact:

- Because of the format of educational objectives, it is virtually impossible at the present time to obtain data which will show how the State curriculum is implemented on the local level.

- This results in at least three specific information lacks:
  - A tally of exactly what portions of a State curriculum are implemented in classroom objectives.
  - A tally of local options that have been proven successful and practical even though not mentioned in the official guides.
  - An estimate, based upon the results of actual classroom performance objective testing, of what per cent of either statewide or local objectives attempted are actually learned by students and trainees in occupational programs.

- Because the labor market must identify products of occupational education by documentation (e.g. high school diplomas, certificates, A.A. degrees, and other licenses) which reflects merely statewide objectives and not local options, it is not always easy to compare educational output with job demands.

Trying to Track Down Answers

Basically, this points to a preliminar question that must be answered:

- How do local schools continue the classification of subject matter beyond the USOE categories of Field of Study, Major Group, and Sub-Group?

Note: USOE Codes

For those readers not familiar with the USOE classification into field of study (e.g., 17.0000 refers to Trades and Industry), major group (e.g., 17.0100 refe to Air-Conditioning), and sub-group (e.g., 17.0101 refers to Cooling), the next three pages have been included to familiarize themselves with the overall coding scheme for occupational education.

The Next Step

Once this information has been obtained, it will become obvious that certain blocks are mentioned by a number of schools. This lead to two distinct questions:

- Which blocks are mentioned by a vast majority of schools as being typical components of its courses under a given USOE code?

- Which blocks are mentioned only by one school or only by a few schools?

OFFICE OF EDUCATION CODES

AGRICULTURE
(01.0000)

01.0100		Agricultural Production
01.0200		Agricultural Supplies
		County Agent-Farm Insurance Adjuster
01.0300		Agricultural Mechanics
01.0400		Agricultural Products
01.0500		Ornamental Horticulture
01.0600		Agricultural Resources
01.0700		Forestry
01.9900		Other Agricultural (Specify)
		Teacher-Farm Exam Officer

DISTRIBUTION & MARKETING
(04.0000)

04.0000		Marketing (General)
04.0500		Floristry - Horticultural Merchandizing
04.0600		Food Distribution
04.0800		General Merchandize Management (Gen./Mis)
		Mid Management
04.2000		Retailing (Gen./Mis.) N.E.C.
		Fashion Retailing
04.9900		Other Instructional Programs (Specify)

HEALTH OCCUPATIONS
(07.0000)

07.0100		Dental Services
	07.0101	Dental Asst.
	07.0103	Dental Lab. Tech.
	07.0199	Dental, Other
07.0200		Medical Services
	07.0203	Medical Lab. Asst.
	07.0299	Medical Services (Other)
07.0300		Nursing
	07.0302	Practical (Voc.) Nursing
	07.0399	Nursing (Other)

HOME ECONOMICS

09.0100		Homemaking - Preparation for Personal, Home and Family Living
	09.0101	Comprehensive Homemaking or Home Economics
	09.1002	Child Development
	09.0103	Clothing and Textiles
	09.0104	Consumer Education
	09.0105	Family Health
	09.0106	Family Relations
	09.0107	Foods and Nutrition
	09.0108	Home Management
	09.0109	Housing and Home Furnishing
	09.0199	Other Homemaking (Specify)

- 09.0200 Occupational Preparation
    - 09.0201 Care and Guidance of Children
    - 09.0202 Clothing Management, Production & Services
    - 09.0203 Food Management, Production & Services
    - 09.0204 Home Furnishings, Equipment & Services
    - 09.0205 Institutional and Home Management & Supporting Services
    - 09.0299 Other Occupational Preparation (Specify)

OFFICE OCCUPATIONS
(14.0000)

- 14.0100 Accounting & Computing
- 14.0200 Business Data Processing Systems
- 14.0300 Filing, Office Machines, Gen. Office Clerical and Typing
- 14.0700 Stenographic, Secretarial and Related
- 14.9900 Other (Specify)

TECHNICAL

- 16.0100 Engineering Related Tech.
    - 16.0102 Agricultural Tech.
    - 16.0103 Architectural Tech. (Building Construction)
    - 16.0106 Civil Tech.
    - 16.0107 Electrical Tech.
    - 16.0108 Electronics Tech.
    - 16.0109 Electro-Mechanical Tech.
    - 16.0111 Industrial Tech.
    - 16.0112 Instrumentation Tech.
    - 16.0113 Mechanical Tech.
    - 16.0114 Metallurgical Tech.
    - 16.0117 Scientific Data Processing
    - 16.0199 Other Related - Optics Tech., Welding Tech.

TRADES & INDUSTRY
(17.0000)

- 17.0100 Air Conditioning
    - 17.0101 Cooling
    - 17.0102 Heating
    - 17.0103 Ventilating (filtering & humidification)
    - 17.0199 Other Air Conditioning
- 17.0200 Appliance Repair
    - 17.0201 Electrical Appliance
- 17.0300 Automotive Industries
    - 17.0301 Body & Fender
    - 17.0302 Mechanics
    - 17.0399 Other Automotive Industries (Specify)
- 17.0700 Commercial Art Occ.
    - 17.0701 Interior Decorating
    - 17.0702 Window Display
    - 17.0703 Product Design
    - 17.0799 Commercial Art Occ. - Other

- 17.1000 Construction & Maintenance Trades
  - 17.1001 Carpentry
  - 17.1002 Electricity
  - 17.1005 Painting & Decorating
  - 17.1007 Plumbing & Pipefitting
  - 17.1099 Construction & Maintenance - Other
- 17.1300 Drafting Occupation
- 17.1400 Electrical Occupations
  - 17.1401 Industrial Electrician
  - 17.1499 Other Electrical Occ.
- 17.1500 Electronics Occ.
  - 17.1501 Communications
  - 17.1502 Industrial
  - 17.1599 Other Electronics Occ. (Specify)
- 17.1900 Graphic Arts Occ.
  - 17.1901 Composition, Makeup & Typesetting
  - 17.1902 Printing Press Occ.
  - 17.1903 Lithography, Photography & Platemaking
  - 17.1904 Photoengraving
  - 17.1905 Silk Screening Making & Printing
  - 17.1999 Graphic Arts - Other Offset
- 17.2300 Metalworking Occ.
  - 17.2302 Machine Shop
  - 17.2303 Machine Tool Operation
  - 17.2305 Sheet Metal
  - 17.2306 Welding & Cutting
  - 17.2399 Other Metalworking Occ. (Specify)
    - Precision Sheet Metal
    - Metal Fabrication
- 17.2600 Personal Services
  - 17.2602 Cosmetology
  - 17.2699 Other Personal Services (Specify)
- 17.2800 Public Service
  - 17.2801 Fireman Training
  - 17.2899 Other Public Services (Specify)
- 17.2900 Quantity Food Occ.
  - 17.2901 Baker
  - 17.2902 Cook/Chef
  - 17.2904 Waiter/Waitress
  - 17.2999 Quantity Food Occ. - Other
- 17.3100 Small Engine Repair (Internal Combustion)
- 17.3300 Textile Production & Fabrication
  - 17.3301 Dressmaking
  - 17.3399 Other Textile Production & Fabrication - (Specify)
- 17.3400 Leatherworking
  - 17.3401 Shoe Manufacturing
  - 17.3402 Shoe Repair
- 17.3600 Woodworking Occ.
  - 17.3601 Millwork & Cabinet-making
  - 17.3699 Other Woodworking Occ. (Specify)
  - Patternmaking
  - House Carpentry

TALLY SHEETS

Putting the Answers to These Questions to Work in Occupational Education Planning and Awareness On a Statewide Basis

Results of Surveying Nine Schools

Each school was asked to break down its major blocks under the USOE code of 17.0302:

- 17.0000 -- Trades and Industry
- 17.0300 -- Automotive Industries
- 17.0302 -- Mechanics

It is to be remembered that by definition a block is a further subdivision of the USOE code to the 7th and 8th digit.

It must also be remembered that, as of 1971, no official coding system exists for the 7th and 8th digits even though each state uses its own coding system for internal reporting or for reporting to USOE.

The same constraints must be applied to all tentative attempts to specify exactly what is meant by the 9th and 10th digits which extend blocks into units of proposed classifying systems.

The problem of local retrieval adds another dimension to the problem. Since each school has its own course numbers, these might well be considered as identifiers which would have an immense local acception and practical value by expressing the system in terms and formats already in local use.

Here are the results expressed in blocks taught and in frequency of schools teaching a particular block.

Block	Frequency
Engine	8
Electrical	8
Brakes	6
Drive (Power) Train	6
Chassis	5
Cooling	4
Body	3
Suspension	3
Lubrication	3
Tune-up	3
Steering	2
Carburetion	2
Exhaust Service	2
STP Transmission Service	2
Special Needs	2
Rear Axle Service	2
Air-Conditioning	2
Alignment	1
Alternators	1
Generators	1
Electrical Motors	1
Tire Service	1
Accessories	1
Transmission Service	1
Shop Orientation	1
Engine Overhaul	1
Testing/Measuring	1

The above data is merely illustory and is not intended to be definitive. It is based on a small sample, none school only.

The above data is merely illustratory and is not intended to be definitive. It is based on a small sample of only nine schools. Casual inspection of its contents is all that is needed for the purpose it serves in this section. It does show that a tally of actual course blocks is a simple statistical concept.

ANALYSIS

This Survey Is

Not Proposed as a Model of Data

But as a Model of Decision-Making

Such a rapid survey will undoubtedly suffer from many sources of error:

- a sample size of nine schools is large enough for only a hasty overview
- not all possibilities will be represented in such a limited sampling
- it was intended to provoke discussion and inquiry rather than provide definitive data

Here are a few of the many activities that resulted from it:

- It became obvious that only five areas (engine, electrical, brakes, drive train, chassis) would provide a great deal of feedback in comparing and contrasting program objectives.
- Thus, rather than spend a lot of time subdividing such areas as tire service and accessories taught only by one school, it was decided to concentrate on the areas with the greatest amount of possible feedback.
- Similarly, schools which had only a few areas began to ask themselves why a particular area was not part of their approach.
- This didn't mean that all schools would adopt uniform programs, but it did mean that local options were chosen by teachers fully aware of other local options quite different in scope and conception.

Tying Data to Decisions

Once the data on classroom objectives was in manageable form, it was natural for a lot of questions to be asked and for a lot of comparisons to be made:

- Some began to ask why engine and tune-up were considered to be different blocks and not part of each other?
- Some asked why there was an apparent difference between such things as chassis and body? between STP transmission and transmission service? between colling and air-conditioning? between electrical and alternators and generators?
- After a while, the questions shifted from terminology and classification to the more fundamental question:
  - Exactly what is taught in a particular school under each of these blocks?
  - In other words, how does your school break down its blocks into units?

Going Beyond Terminology and Provicialism

Each state and each school has its own terminology and its own hierarchy of course objectives.

One advantage of such a tally as that examined above is that it allows good teachers, even when from different states, to start working together.

Note:

Such a survey will require additional rigor and design to make it a source of actual block structure.

However, it is proposed here merely as a vehicle to initiate the kind of thinking that must precede sending out the survey instruments.

SKILLS AND ABILITY PATTERNS REQUIRED IN THE MARKET PLACE

Making Sure That a Local Education Agency Doing a Remarkable Job in Achieving Desired Student Performance Objectives Has Relevance to the Job Market

This age-old dilemma in occupation education is not a problem that can be solved by comparing a computer printout of 10,000 performance objectives from one state with 12,000 performance objectives from another state.

What is needed is a level of generality that shows what is happening in developing:

- course level performance objectives,
- entry level job skills,
- and a system of tying them together.

This must be in terms of a manageable list of ten to twenty occupational block variables and not in terms of thousands of specific units.

An Example

Recently, it was possible to compare the blocks into which auto body repairs (USOE code, 17.0201) was subdivided by three states:

- two states which were trying to begin the coordination and mutual exchange of program objectives between various schools
- one state which developed these occupational blocks from the points of views of both teachers and employers.

Five Schools in Two States

Here are the occupational blocks and frequencies in a brief survey of auto body repairs in two states:

blocks	frequency
painting	3
parts assembly	2
panel assembly	2
frame	2
metal repair	1
fundamentals of metal	1
theory and application of welding	1
materials for body preparation preparation	1
hydraulics	1
estimating	1
glass	1
mechanical parts replacement	1
spray gun	1
used car conditioning	1
surfaces	1
chromes	1
rust and rot repair	1
delivery	1
paint types	1
paint problems	1
paint estimating	1

A rapid overview of this survey shows that it reflects many local issues:

- some schools work on a production basis where by students are taught to repair actual cars as they come in off the street
- not all of these schools agree on the level of complexity indicated by a block (e.g. all the items related to painting)
- some of the titles seem to stress physics (e.g. hydraulics) rather than auto body repair
- attitudes necessary for employment are nowhere obvious even though one could suppose that a trainee with a good disposition could learn quite a bit through on-the-job training

One State Comparing Teachers and Employers

This study was done on two levels, the block terminology level and the unit skill level.

Terminology Level

There was not too much difference between teachers and employers when it came to pinpointing the names of areas necessary for auto body repair occupational training in one state.

Here is a listing of the nine areas teachers and employers considered to be the main occupational blocks; eight of them were oriented towards skill and knowledge; the ninth was composed of thirteen desirable occupational attitudes.

Welding

Metal Straightening

Body and Frame Repair

Fiber Glass Body Repair

Refinishing

Glass Replacement

Panel Replacement

Estimating

Thirteen Desirable Occupational Attitudes

Unit Skill Level

Once there was unanimity on the names of the necessary occupational blocks, it was found helpful to subdivide these down into specific units.

As long as the units rested on the name and terminology level, it was still possible to find a degree of unanimity.

Each group was asked to spell out two sorts of specifications:

- exactly what was to be performed by the objectives in each unit
- exactly how it was to be measured

The Apparent Differences

The findings of this survey seemed to indicate that:

- teachers seemed to place greater emphasis on the knowledge level of such things as welding than employers do
- employers seemed to require a higher level of skill in such things as refinishing than did teachers
- employers were aware that a student with average or above-average intelligence can learn quite a bit through on-the-job training if he is willing to learn
- in many cases, willing to learn meant having the right attitude as defined by the employer

One interesting item, "The Right Attitude : Learning on-the-Job," will be developed in a separate section.

Implications of Such Research

With the assistance provided by an item and objective bank, a local educational agency will be able to see if it is doing a good job meeting the objectives chosen by its teachers. The LEA has then answered two questions:

- "What are we trying to do?"
- "How well have we done it?"

Once this first goal of self-accountability has been attained, it would be possible for the school to ask itself some more fundamental questions:

- "Are the objectives we have chosen really relevant to the demands of the job market?"
- "How well do our objectives square with the skill and ability patterns required in the market place?"

EVALUATION

Determining How Well Objectives Are Attained

PERFORMANCE TESTING : Putting Research to Work for the Classroom Teacher Interested in Industrial Standards

Many teachers feel that a combination of performance objectives as a rough guide and industrial standards as a measuring rod creates a team that can improve the teaching-learning process.

The question arises, "How did such teamwork develop?"

The answer is simple : Interested educators said they would like to have information available to them providing peer group standards, industrial quality standards, and industrial time standards but it would take too much time for an individual teacher.

Computer programs were then set up to get this valuable evaluation information into the hands of educators. It is a two-way street : the teacher receives a helpful service and the researchers receive information from the resulting feedback that continually improvides the quality and the specificity of the service rendered.

What the Teacher Does

1-- Performance and Behavioral Objectives

For each item the teacher wants evaluated, he submits a performance objective in a format which includes:

- cross-referenced coding
- conditions, performance, and extent of the particular objective.

In actual practice, this includes the following previous activities:

- decisions about what is essential and what is incidential in the conception of a particular course on the local educational agency level
- selection of objectives from lists constructed and written by teachers giving similar courses
- writing and cross-referencing only that local objectives which are not available elsewhere through use of the computer feedback system.

2-- Cross-Referenced Test Items

For each objective, the teacher will construct a corresponding test item.

Those tests which combine several objectives and items into a single evaluat instrument would seem to be of high priori at this point.

In actual practice, this includes the following activities:

- going over old examinations, both paper-and-pencil and psychomotor, and deciding whether or not a particular item really gives the type of information needed by the school, teachers, and trainees
- if a particular item is valuable, then it must be related to an obje tive to establish its priority; otherwise, it is removed from cons eration as a prime concern
- often a clearly written performance objective will make the test item obvious or self-evident
- once test itmes have been cross-referenced with essential and incid tal objectives, it will often be necessary to construct new test ite to measure essential objectives tha are not currently being adequately evaluated by existing testing instruments.

Goal: Management, Not Merely Enumeration

Rather than become bogged down in insurmountable paperwork, the teacher should realize that his task is to gain control of the educational situation.

At the moment of entering upon a feedback system, the prime consideration is not that every course have every possible terminal and enabling objective clearly written up in a file cabinet somewhere.

The important thing is that teachers begin to decide which objectives are really worth teaching and measuring. Rather than get swamped in details, it is suggested that teachers start with the most important objectives of their courses. Once these are taken care of, the teacher will be able in later work to spell out incidental learnings which are important but which are not as essential as the prime importance objectives which must be learned by every successful trainee and student.

A real feedback system will give the following capabilities to each participant:

- the ability to edit, adapt, and rewrite objectives to fit new needs and new conceptions
- the ability to profit from the successful and well written objectives and items of others
- the ability to revise one's own curriculum without having to choose objectives for which no support (clear statement, test items, and cross-referenced media) exists.

3-- Test Data

Once the participant has decided upon "his or her objectives," i.e., those objectives which have been personally written or chosen from the work of others, student and test data are necessary for a complete analysis.

For each student, the teacher will prov
the following information in tabular for dat
processing form:

- student number (the complete computerized file is necessary only the first time)
- evaluation of each item (maximum of ten itmes per test); this will usual be in the form of quality points ranging from 0 to 9
- working time in minutes.

For each batch, the teacher will provid
the following identification:

- instructor code
- school code
- job code
- maximum number of quality points
- T_1 - Time of industrial standard o of experienced operator
- Q_1 - Industrial standard quality points or of experienced operator

Service, Not Monolithic Similarity

The above procedures are for those educators interested in having data on peer, quality, and time standards in the correction of examinations.

Rather than appear as a prescription for all educational institutions, it is proposed as merely an example of the tailor-made options available.

System, Non Immutable Stability

The above procedures are for those educators who realize that their first efforts at writing objectives and cross-referenced test items will not always give immediate results of the hightest possible quality.

However, with a systematic approach, teachers and other educators will be able to update, edit, and revise both their objectives and test items.

This means that the system will try to set up the computerized hardware necessary to make this possible.

Structure, Not Unprocessed Data

The above procedures are designed to facilitate an intellectual audit of the widest possible scope.

Rather than say that the following courses are taught at a particular local educational agency, it will be possible to spell out with performance objectives exactly what is taught under a particular course name.

In time, it will be possible to spell this out in terms of entry level job skills.

What the Teacher Will Receive

For every objective and cross-referen test item submitted, the instructor could receive the following:

- total quality points for each stud
- average working time of the group
- results of Formula I for each student (peer group standard)
- results of Formula II for each student (industrial standard)
- results of Formula III for each student (industrial time standard for maximum quality work only)
- efficiency score (I, II, or III)
- trainee efficiency measured as percent of industrial standard
- average group time
- average efficiency score
- average trainee efficiency measurem as percent of industrial standard
- if a retest is desired, all the ab is available plus the following comparisons (test/retest) for both individuals and group percent loss or gain by efficiency scores
  - percent loss of gain by industri standards
  - statistical significance of loss or gain

Individual adaptations of the above a always available to respond better to local needs and goals.

CONFERENCE FEEDBACK : Using Goal Awareness Instead of Speaker-by-Speaker Evaluation

The typical results of a conference evaluation, no matter how long or how short the evaluation instrument used, come out looking like this, "Last year's conference was considered a success; yet we cannot pinpoint the strong points. Similarly, last year's conference received a certain amount of criticism; yet we cannot pinpoint the items we want to change."

The use of conference goals expressed in terms of performance objectives is an attempt to see what factors made the conference successful and what factors caused criticism on the part of those attending. It's an attempt to attain this two-fold goal without having to blame any particular conference speaker; it realizes that a successful conference is a result of both participants and leaders.

OVERALL GOALS: 1971

Conference: Manpower Priorities in the 1970's

In order to understand our conference, it is necessary to understand its goals. Its three principal goals can be summed up by three adjectives:

(1) humanistic,
(2) informative, and
(3) paperwork.

Humanistic means that we want this conference to give us an opportunity to get to know each other, to exchange experiences, and to stress the human side of our work.

Informative means that we want this conference to explain to you the recent legislation, innovations, and brueaucratic changes that directly effect our manpower programs.

Paperwork means that this necessary part of our job does involve a few changes in procedures.

By presenting the objectives of our conference in these terms, we are trying to give you a clearer idea of exactly what we want to do. The next few paragraphs will try to make this idea even more specific so that when it comes time to evaluate our conference, each of us will be able to do so with a clearer idea of how well we have obtained our objectives.

Here are the type of questions we are going to ask to find out if our conference has been humanistic.

- Have you met ten manpower workers you have never met before and spent some time exchanging ideas with them?
- Have you found at least one person at this vast conference who does the same type of work as you?
- Have you exchanged comments, criticisms, and problems with this person?
- Have you learned at least one good idea from a fellow participant?
- Have you passed on at least one good id to a fellow participant?
- Have you tracked down and met in person at least two or three of the people wit whom you have had many telephone calls but whom you have never met?

Here are the type of questions we are going to ask to find out if our conference has been informative.

- Have the changes in legislation been explained to you in an understandable fashion?
- Have your questions been answered in a way that leaves you satisfied?
- Have you received printed summaries of the most important legislation changes?
- Do you know whom to telephone when an interpretation difficulty emerges?
- Do you know what documents are essential to help you understand these legislative changes?
- Do you understand the new deadlines for the coming fiscal year?
- Do you understand what money has been cut out?

- Do you understand what new programs have been authorized?

Here are the types of questions we are going to ask to find out if our conference has placed our necessary paperwork in perspective.

- Do you understand what procedures have been changed in working with the manpower office?
- Has someone listened to your helpful suggestions on how to speed up the process?
- Do you understand the reasons why certain documents require large number of copies?
- Do you understand exactly what takes so much time to process certain documents?
- Do you understand the reasons behind certain directions which are very specific and detailed?
- Have you actually spoken to two or three of the people who will be handling the paperwork you send in?

The effectiveness of each aspect of the conference will be assessed through brief exposure of conferees to audio-visual stimuli coupled with the immediate elicitation of responses to relevant statements of questions. As a basis for preparation of feedback materials, each panel chairman is asked to do the following:

- Prepare a brief statement of not more than four objectives for his panel's presentation in terms of desired audience reaction and feedback .
- Solicit a similar statement from each panel member.

These objectives seem quite complicat but when you look at the way we are going to evaluate them, you will have to admit that the average man in the street who knows nothing about our manpower programs would be able to answer almost everyone of these questions simply by observing. If we gave him the three words, humanistic, informative, and paperwork without our evaluation questions, he would have no idea of where to begin. This is all we want to do this year in evaluating our conference. We doubt very much if we will change our three key words a year from now, but we do hope that you will be able to suggest to us better questions that we can use next year in evaluating our annual manpower conference. We are all in this evaluation together, and we all hope that once we start getting specifics we can start making improvements.

SUMMARY

The 1971 Manpower Conference Evaluati will follow a format different from that used in previous years. Emphasis will be placed on feedback from conferences within humanistic, informative and administrative structure.

The humanistic aspect relates to the provision of a milieu in which Conference participants are able to meet both formall and informally, exchange experiences and establish a personal working relationship.

The informative aspect relates to the exchange of information pertinent to manpower related programs.

The administrative aspect relates to presentation, explanation and discussion o changes in procedure in the planning and implementation of manpower programs.

Some Performance Objectives
for Conference Speakers

Here are a few behaviors easy to identify; they are often more due to carelessness than to ignorance.

Time and length

____ the speaker spoke too long
____ members of the audience were evidently bored; they yawned, etc.
____ other speakers were unable to deliver their entire presentations
____ the main idea of the lengthy speaker got lost and smothered in a superabundance of secondary ideas and personal comments
____ the speaker was surprised and unprepared for audience misunderstanding of and opposition to his ideas
____ not too many are sure of the main idea

Feedback

____ the audience did not want to ask any clarifying questions
____ the speaker was able to squelch any challenges to any of his ideas
____ the speaker dominated the question and answer session after the presentation

Clarification of Ideas

____ many in the audience completely misinterpreted the main speaker
____ when asked a question, the main speaker merely repeated exactly what he had said or read earlier
____ the speaker overstressed non-essentials

Variety of Presentation

____ the speaker seems to be aware of no other way to convey his ideas than by reading his prepared comments
____ the audience is impressed with the breadth of his coverage even though many members are not able to understand exactly what he was getting at
____ the speaker is completely unaware of what is happening while he talks

Here are [illegible] common sense cures; they require a bit of discipline to improve your presentation.

A Clearly Defined Goal

____ the speaker chose only one essential idea and stuck to it
____ the audience responded to it with clarifying questions
____ the emotional reaction of the audienc was obvious; it got the message
____ the speaker seemed able to anticipate and handle the audience reaction
____ not everyone in the audience agreed with the speaker, but most seemed to understand what he was talking about
____ the main idea is clearly not subordinated to secondary details

A Cooperative Endeavor

____ the audience began to ask the speaker and each other intelligent questions
____ the speaker became more an expert consultant than the dominant speaker
____ unexpected questions did not throw the speaker

A Step-by-Step Interpretation

____ the speaker didn't use a lot of notes
____ he had one main idea which he present in a variety of ways until it sunk in
____ he clearly identified correct and incorrect interpretations of what he intended to present to the group

A Step beyond Technique to Dialogue

____ the speaker used a minimum of notes
____ he used one or two visual aids
____ similarly, he used common sense examples and comparisons
____ he maintained eye-to-eye contact with the group to determine their reaction
____ he tried successfully to evoke audience reaction and involvement
____ he gave examples from his own experie

BUILT-IN EVALUATION : Trying to Put Evaluative Criteria in Terms the Man on the Street Can Understand

Even the most simple operation can be made more complicated than necessary if one doesn't constantly ask the question, "What clearly visible and easily observable difference is the objective of all this activity?"

Not all worthwhile goals are readily verbalized; many a worthwhile objective must be approximated rather than definitively spelled out by a written description.

However, this does not mean that putting a priority on clarity is impossible. When the man on the street understands in his own language, he will be in a better position to evaluate the uses being made of his tax dollar.

Evaluation

When one boils down the rules of evaluation, two questions remain fundamental :

- What is this activity trying to do?
- How well has it done it?

Once these two questions are answered in simple terms, it is possible to base decisions upon evaluation.

If these two questions remain unanswered, then all the evaluation forms, questionnaires, barometers, and checklists will not help much.

Applying This to Proposal Evaluation

Whenever any agency tries to evaluate a large number of proposals, it develops a set of guidelines or priorities to help clarify its own thinking.

Once this has been done, there still remain other problem areas :

- Often there is not enough time to read all the proposals that come in for evaluation.
- Vague words in even the best of proposals often make it difficult to understand exactly what the author was trying to say.
- In retrospect, it often happens that a project that looked good in the proposal stage does not live up to its expectations.
- Similarly, it is not unusual for a project that looked very non-sensational in the proposal stage to become a pacesetter in its domain.

Typical Evaluation Results

According to the typical self-evaluation which is the only kind found in most projects, it is possible to detect a leit motif like this :

- "If only our project had had more money, it would have produced more results of a higher quality level!"
- "Because our budget was cut, we had to eliminate the most valuable parts and consequently the results are inconclusive."

A Different Philosophy of Evaluation

Once evaluation starts thinking in terms of a pre-defined product, which is clearly visible, it becomes a lot easier to recognize success or the lack thereof.

Thinking in terms of product is a different approach to research dollars.

- Research Spending Dollars is a concept familiar to anyone who has ever looked at a research budget. Example : In order to solve this problem, it will cost 5,000 dollars.
- Research Saving Dollars is a concept that is not quite so familiar. Example : Unless we find a cure to this problem, it will cost the State 10,000 dollars.
- Research Producing Dollars is an idea still less familiar. Example : Solving this problem will raise the Gross National Product by 50,000 dollars.

The Unique Nature of This Evaluation

Basic Activities

The proposal selected will have to outline the approach taken to do two inter-related activities:

- evaluate past EPDA-funded programs according to EPDA's four goals and,
- help future EPDA proposal writers to provide built-in evaluation for their projects.

What This Entails

PAST PROJECTS: Rather than merely give each project a report card type grade on a number of variables, it will be necessary to search out:

- program objectives that functioned effectively in opening the eyes of teachers and administrators to the reality of the world of work in such a way that desirable change was introduced into the classroom functioning of occupational programs
- classroom objectives that did work effectively in helping students obtain a correct understanding and attitudinal orientation toward what the world or work is like now and will be like when it will be time for these students to enter the work force.

Here are a few helpful definitions:

- desirable objectives simply refer to those objectives which have given a true picture of the world of work
- effective objectives are simply those desirable objectives which have been documented and proven by actual classroom success to produce the results sought.

FUTURE PROJECTS: Rather than tell future proposal writers what to do, the evaluation report will present its documentation in such a way as to facilitate several professional activities:

- the selection from past projects of areas which did work effectively
- the construction of other approaches which will provide built-in evaluation to measure their effectiveness of ineffectiveness
- the ability to build upon the successes of previous EPDA project and to avoid dead-ends clearly identified as such.

Implications of All This Documentation

At the present tiem, it is indeed rare to find a project that has been declared even a partial failure by self-evaluation except for lack of time, or money, or personnel.

Under the system of built-in evaluation it will no longer be possible to declare a project either a complete success or a complete failure.

- This will mean that each segment of a project will have its own objectives, its own price tags, and its own criteria.
- In the case of two successful components which both attained the same objectives, it will be possible to compare results on a cost basis.
- In the case of two programs with identical goals, one of which was successful with a smaller budget, it will be possible to make some interesting comparisons.
- There will be components of programs which will be declared complete disasters; this will not void the benefits of other segments of the program, but it will provide information on objectives and approaches that are documented to be unsound.

Trying to Develop Built-In Evaluation

The attached request for proposals was developed in an attempt to spell out in everyday language exactly what kind of evaluation is wanted to furnish the basis for several activities:

- in-service training for occupational educators
- pre-vocational awareness of the world of work
- curriculum development for occupational relevancy
- updating of vocational counseling skills on the elementary, secondary, and post-secondary levels

Each section of the request for proposals was developed for the purpose of clarifying exactly what was needed.

Introduction

This opening section gave the backgroun of the EPDA funding and its general objectiv

Specifications

Focus

Rather than remain with the general terms of the introduction, this section tried to spell out how all of these generalized goals could be observed in terms of changed classroom behavior of the participants.

Level of Specificity

This section tried to list specific concerns that could be considered in making the product of this evaluation observable.

Level of Practicality

This section tried to spell out the specific purposes for which this evaluation material would be used.

This section also spelled out in terms of resulting documents exactly what kind of format the final report would be expected to take.

In addition to format, this section gave examples of the areas of interest for each of the four major priority areas.

External Documentation

This section tried to make it clear that the world of work must also be consulted to avoid the possibility that the resulting documentation was strictly academic and not occupational in the strictest sense of the word.

Contents of the Proposal

Length of the Proposal

Copies

Budget

Deadlines

Notifications

Additional Specifications

Mailing Address

Additional Questions

These sections were intended to supply such specific information as who, what, where, when, and how.

Criteria for Selection

One of the first things any reviewing agency does is to determine its criteria for success or failure.

Sometimes, this is kept an official secret. It is feared that, if the selection criteria were known, proposals would be written simply to please the reviewers in order to be funded.

The criteria for selection were not kept a secret in this request for proposal.

The thinking behind this was simple:

- If a proposal will be judged against a certain set of standards, it seems best to equalize all bidders by making public the standards required.
- Rather than keep the criteria a secret, which is a bit like teachers keeping the final exam questions under cover, it was felt better to state explicitly what was expected.

In this way, it was thought more appropriate to spell out in as much detail as possible the overall goal of the request for proposals which was:

REQUEST FOR PROPOSALS

To develop a set of documented techniques and procedures

- that will help evaluate past EPDA-funded programs according to EPDA's fourfold goal structure and
- that will help future EPDA proposal writers to provide built-in evaluation for their projects through the use of clearly expressed and precisely measurable program objectives in occupational education in-service training.

Introduction

The Bureau of In-Service Education of the New York State Education Department has been funding projects under the Education Professions Development Act, Part F, Section 553.

In the summer of 1970, five two-year colleges conducted in-service training programs with the purpose of improving the skills of occupational teachers to accomplish four goals:

a) To provide opportunities for vocational educators (secondary and post-secondary) to gain greater insight and skill in working with, and developing pertinent programs for, disadvantaged and handicapped youth.

b) To provide opportunities for expanding pilot efforts to introduce elementary and middle school personnel to, and increase their understanding of, the world of work, so that they may more effectively work with young children in providing occupational education orientation.

c) To provide opportunities for local school administrators to gain adequate information and develop expertise which will enable them to prepare relevant program objectives as well as develop and implement short and long-range program plans.

d) To provide opportunities for guidance and counseling personnel to develop greater proficiency in providing vocational counseling at the elementary, secondary, and post-secondary levels.

In the summer of 1971, five two-year colleges will be funded to conduct programs designed to implement the same goals.

These are the programs to be evaluated

Specifications

Focus: The guiding principle behind the evaluation is to answer the question: "What's different in the classroom performa of the teachers who participated in these inservice sessions?"

- In other words, "How has their in-service training helped them become more responsive to the four-fold goal of EPDA?"
- "If anything has changed in their classroom or in their students, then why not?"
- "What precise part of their in-serv training was instrumental in bringi about these desired changes?"
- "What precise part of their in-serv training did not contribute to the realization of these fourfold goals

Level of Specificity: Such answers to the above question as "My attitude improved" or "My teaching became more practical" should be spelled out into concrete behavior or classroom performances that can be employed by other teachers in similar situations.

This would include but would not be limited to such specific things as:

- classroom teaching techniques that worked with disadvantaged students, an assessment of why and how they worked, and a clear-cut description of what is meant by success;
- classroom techniques that didn't work and the reasons why;
- similar approaches to elementary and middle school students;
- specific changes in school programs made by administrators to respond to relevant program objectives;
- specific changes in the methods and effectiveness of guidance personnel to deliver vocational and occupational counseling that meets the varying needs of elementary, secondary, and post-secondary students;
- delineation of the precise nature of the varying counseling needs of these different audiences.

Level of Practicality: The resulting documents of this evaluation will be expected to provide all the procedures and details necessary to:

- evaluate past and present EPDA projects as specified herein
- provide guidelines for those interested in writing future proposals which will include built-in evaluation and research potentials.

The resulting documents will be composed of the following sections, each one of which should be capable of being free-standing and reproducable on its own:

- the evaluation process used
- pre-project training techniques that will prepare teachers for this type of work
- project activities that have worked with students
- project activities that have worked with teachers
- goals written in performance or behavioral objective terms that spell out what teachers can do or learn as a result of EPDA
- goals written in performance objective terms that spell out what students should be able to do as a result of their teacher's EPDA
- guidelines to writers of future proposals on how to develop built-i evaluation and research potential for the proposals they submit
- development of performance or behavioral objectives and developme of a format for the construction of other performance objectives in the area of:
    - awareness of the world of work for elementary and middle school students
    - skills and insight needed by teachers to work with disadvantag and handicapped youth in occupational education
    - expertise needed by administratio to harmonize their program planni with relevance to the actual demands of the world of work
    - skills needed by counselors to provide vocational counseling at three levels:
        - elementary
        - secondary, and
        - post-secondary.

External Documentation: Reasonable checks must be built into the proposal to assure that the documents produced as a result of this evaluation reflect the needs of the school and the expressed needs of the world of work.

Contents of the Proposal: The proposal should include:

- method of meeting specifications
- methodology and design of study
- unique aspects of the project
- budget and cost efficiency
- description of the documents which will constitute the final report.
- vitae of principal investigators

Length of Proposal: Obviously a fully developed proposal would go a long way towards developing the final product, but this would take too long.

Therefore, the proposal submitted for funding should emphasize ideas, implementation strategies, and plans.

Copies: 35 copies of the proposal and curricula vitae of all except clerical personnel must be submitted to be read by an evaluation committee.

Budget: The budget is not to exceed $40,000 for the time period, July 1, 1971 to June 30, 1972.

Deadlines: Proposals are to be submitted by May 31, 1971.

Those institutions interested in submitting proposals are required to verify this by a letter of intent to be sent before May 1, 1971

Decisions regarding proposals will be made on June 15, 1971.

Notification: Those selected will be notified by telephone.

Additional Specifications: For more precis information about details of allowable budget items and project activities, it is presumed that those submitting proposals a familiar with the EPDA guidelines.

Mailing Address : Proposals should be sent to the consultant with whom you have been in contact.

Additional Questions : Should any clarifications be required, please call for more information.

Criteria for Selection: The following questions will be sent to the selection committee:

- Does the proposal respond to the specifications?
- How well are the proposal objective addressed to the Department's priorities and the needs of the students in occupational education
- How clearly are the objectives of the program spelled out?
- How readily can the attainment of these objectives be assessed?
- Would you suggest any modification in the number and/or type of activities to make this evaluation more effective?
- Are the proposed activities appropriate in terms of the goals of this product-oriented evaluatio

- From the budgetary information provided, would you recommend full or partial funding? How much?

- If only a part of this project is adequate, which part would you consider better than corresponding parts of the other competing projects?

- Do you feel that the description of the final documents to be produced by this project is adequate?

- What suggestions have you for improvement if this proposal is chosen?

- In what way can the results of this proposal lead to improved vocational teacher education on a Statewide basis?

- Does this proposal overlap with any other State or Federal activity? What effect would this have on funding?

- Choose one: This project:

  (a) is highly recommended,

  (b) is recommended,

  (c) should be rejected,

  (d) is recommended subject to the following modifications.

Sample Cover Page

Project Code
No. ______

EPDA EVALUATION PROPOSAL
FISCAL YEAR - 1971

Submitted to the Bureau of In-Service Education

TITLE:

PRINCIPAL INVESTIGATOR:

INSTITUTION:

APPROVED BY: ______________________________

DURATION OF PROJECT: July 1, 1971 to June 30, 1972

FUNDS REQUESTED:

DATE OF SUBMISSION:

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202
EDUCATIONAL PERSONNEL DEVELOPMENT PROGRAMS

BUDGET SUMMARY

BUDGET BUREAU NO. 51-R0759
APPROVAL EXPIRES: 11/30/69

TITLE OF PROJECT REPORTED

NAME AND ADDRESS OF INSTITUTION *(City, State, ZIP Code)*

	A. DIRECT COST-ADMINISTRATIVE & INSTRUCTIONAL STAFF SALARIES		PART F	OTHER	TOTAL
1	DIRECTOR				
2	SECRETARIAL AND CLERICAL				
3	OTHER ADMINISTRATIVE SUPPORTING STAFF				
4	FULL-TIME INSTRUCTORS	NO.			
5	PART-TIME INSTRUCTORS	NO.			
6	LABORATORY ASSISTANTS	NO.			
7	INSTRUCTIONAL ASSISTANTS	NO.			
8	LECTURERS AND/OR CONSULTANTS	NO.			
9	*SUBTOTAL FOR SALARIES (Sum of Lines 1 through 8)*				
	B. OTHER DIRECT COSTS				
10	EMPLOYEE SERVICES AND BENEFITS				
11	TRAVEL				
12	OFFICE SUPPLIES, DUPLICATING, PUBLICITY, COMMUNICATIONS				
13	INSTRUCTIONAL SUPPLIES, ETC.				
14	REQUIRED FEES				
15	EQUIPMENT RENTAL AND/OR DEPRECIATION *(If applicable)*				
16	*SUBTOTAL FOR OTHER DIRECT COSTS (Sum of Lines 10 thru 15)*				
17	TOTAL DIRECT COSTS *(Sum of Lines 9 and 16)*				
	C. STIPEND SUPPORT *(Federal participants)*				
18	PARTICIPANTS	NO.			
19	DEPENDENTS	NO.			
20	TOTAL STIPEND SUPPORT *(Sum of Lines 18 and 19)*				
21	TOTAL DIRECT AND STIPEND COSTS *(Sum of Lines 17 and 20)*				
22	INDIRECT COSTS				
23	GRAND TOTAL *(Sum of Lines 21 and 22)*				

OE FORM 7203-1, 6/69

ACCOUNTABILITY

The Relations
Between
Dollars and
Learning

EDUCATIONAL ISSUES : What to Do When the Experts Disagree with One Another

An issue in Education is often an area where it is difficult to find unanimity even among the experts. Ordinarily, these areas are comprised of situations where each alternative leads to a vastly different conception and scale of values.

It is not always possible to avoid the dichotomy caused by the typical educational issue. However, it is hoped that the use of performance objectives in defining the scope of an issue will remove any uncertainty caused by fuzziness of terminology.

A few typical unaswerable questions have been chosen to give examples of the new type of interaction that develops when performance objectives are used to clarify issues.

Issues: Unanswered Questions

A number of questions arise whenever one tries to suggest that there is a better way of describing occupational education.

TEACHER CERTIFICATION

- What must we look for when trying to certify an occupational teacher?

CURRICULUM MODULES

- Is the one semester or two semester course the most effective way of dividing up a course of study?

COURSE PREREQUISITES

- What type of prior demonstrable knowledge must a trainee or student have before being allowed to take a particular advanced course?

CURRICULUM DEVELOPMENT

- Is there a practical and reasonably priced method of keeping occupational curricula up-to-date and effective?

REQUIRED COURSES

- How can required courses in math and the basic sciences be developed in a way to maximize benefits to occupational students.

TEACHER CERTIFICATION

Academic Credentials and the Ability to Earn a Living

The exercise of a trade or occupation necessarily demands a certain amount of knowledge accompanying the skill by which one earns one's living. As can be seen in the case of the awkward savant, the more possession of knowledge does not necessarily imply the ability to perform the skill concerned.

Similarly, a person who acts merely from memory will function acceptably as long as no need to think arises. But when exceptions occur, the unthinking automation will fall to pieces and possibly kill himself on complicated machinery.

Society demands competent teachers and competent workers. A society that prevents non-diplomaed workers from teaching is perhaps failing to recognize communicable knowledge that was learned outside the school house. A variety of people have learned a variety of things in a variety of ways and places, only one of which has been the school. This fact must be expected to recognize all the potential teachers available at a given moment.

The Basic Question

This question emerges in another form:

- "Does the performance required of an occupational teacher demand that he possess an academic degree?"

This question is difficult to answer since an academic degree is more often defined in terms of courses than in terms of skills acquired. Unless a course is defined in terms of skills gained, the mere completion of a course is not a guarantee of the ability to perform.

When one begins to think in terms of performance objectives, one stops asking the question:

- "Has this prospective teacher a college diploma or a teaching certificate?"

Instead, one begins asking two questions:

- "What does our ogranization expect a teacher to be able to accomplish?" and,
- "Has this prospective teacher the expected capabilities in these specified domains?"

CURRICULUM MODULES

Trying to Squeeze the Most Occupational Benefit out of Smaller Units of Time Than the Semester

A curriculum can be viewed as an assembly of semester or two-semester courses each of which contributes to the desired end-product.

This assumes that each essential component can be provided by one or more courses. Depending upon the course content, this may or may not meet the requirements of the student following a particular curriculum.

There are other ways to divide up a course of study. For example, the construction of performance goals for instruction based on anticipated terminal capabilities allows for the expression of course content in clear and unambiguous language.

A collection of closely related performance objectives is called a module. As selfstanding building blocks, modules provide a flexibility necessary to prepare students for more precise career ladders. If course content is identified in terms of performance objectives, the segments of a course can be used in a number of ways.

Utilizing such a system, it would be possible to identify the particular welding skills, machine skills, layout skills, or the like, needed for performance in a particular job family. It would not be necessary to take full courses in each area.

Why This Smaller Time Unit Helps

This approach would aid individualisation and personal counseling, and realignment of goals would be easier since students would not be locked into a program. Goal aspirations could be modified upward or downward as competencies are revealed through frequent checks on performance.

It sometimes happens that only a part of a course is essential to the needs of the student. For example, students have taken complete courses in welding because there are certain welding operations that these students must learn for their chosen career.

When operations other than those directly related to on-the-job welding have been presented in the course, certain students develop the attitude, "Why should I study things I'll never need to know after the final exam."

Similarly, their curriculum planners have begun to say to each other, "Certain full semester courses are teaching topics not essential to our occupation and thus using up time which could better be devoted to other topics need by our students."

Almost subconsciously, both students and curriculum planners are shifting the emphasis from courses to competencies. This is the first step to writing performance objectives.

The Rationale

The welding teacher may be willing to accommodate these specialized students from a particular occupation but he needs more precise instructions than "Teach a welding course geared to this particular occupation."

He needs someone to tell him by job analysis exactly what operations are necessary and to what extent they must be taught.

With these specifications, the teacher will know exactly what he is expected to teach and the students will know exactly what they are expected to learn a long time before the final exam.

One form of developing these specifications is known by the names of "performance objectives" or "behavioral objectives." When a group of related performance objectives are grouped together in an instructional unit, a "module" emerges.

COURSE PREREQUISITES

Starting to Think in Terms of Trainee Abilities Rather Than in Terms of Student Transcripts of Courses Completed

The approach taken by this section is quite simple:

- One of the more visibly verifiable ways of demonstrating the reasons behind prerequisites is to present course prerequisites in performance objective terms.
- This goes to the heart of the issue and tries to spell out the structure of the objective involved by showing how it builds upon previous objectives.

When one course is a prerequisite of another course, the assumption is made that success in the second course depends upon success in the first course.

In practice, some students who receive a grade for a prerequisite course do not learn all the basic skills required for the next course.

One reason for this is that the teacher of the prerequisite course was never told precisely what he was to do. The reason he was never told is simply that his course was described in vague, general terms instead of in performance objective terms.

It is not always necessary or desirable that every detail be spelled out. However, if the most important components of a prerequisite course are not specified in clear and concrete language, the second course in the series will possibly be building on sand.

CURRICULUM DEVELOPMENT

Switching from Paperwork to Decision-Making Both by Curriculum Specialities and by Classroom Teachers

When one considers the fast pace of the development of knowledge in the 1970's the problem of curriculum development is not that of writing curriculum but that of revising and updating curriculum.

Seen from this perspective, a few simple guidelines emerge:

- Curriculum development, if it is to fulfill its mandate of being up-to-date and practical, really boils down to staff development.
- It is more important to establish a mechanism or system of updating and improving stated objectives than to attempt to start off with perfectly written objectives.

- When curriculum development changes from telling the classroom teacher exactly what, when, and how to teach, and instead asks him, "What has your teaching experience taught you is possible and practical on the classroom level?" then the teacher is being treated and also being developed as an expert.

Typical Obstacles to Overcome

Here are typical objections and difficulities that emerge when a teacher tries to do too much writing and not enough deciding in writing performance objectives:

- "Our school doesn't have enough money to release teachers to write objectives."
- "Our best teachers are too busy teaching to have time for all this paper work."
- "Performance objectives are very helpful but the excessive amount of details they demand make the process of their construction much too dull."
- "Now that we have written all these performance objectives, the classification system necessary to get them on the computer is too complicated and is obviously unrelated to the local needs of our school and students."

Each one of these objections is very real for the teacher who has started to write performance objectives without any real idea of what this method can do to improve detailed classroom instruction.

Slow, Methodical, and Pragmatic Decisions Require Much More Than Paperwork

To get the maximum benefit out of performance objectives a teacher must move into the system slowly, methodically, and pragmatically.

Slowly

Slowly means that the teacher will get better results if he or she tries to put down on paper only two or three of the most important objectives of his course.

Once his is accustomed to planning course objectives, testing items, and learning media at the same time rather than piecemeal, he will be able to expand the explicitness of his written performance objectives without too much difficulty.

Methodically

Methodically means that the teacher will be able to detail his approach by employing feedback from other schools.

Once his objectives are codified he will be able to retrieve objectives used by other teachers in similar courses.

Most courses have cognitive and mental goals; they also have affective and attitude goals; they also have psychomotor and manipulative skill goals. Each of these three areas can be codified in a manner to help improve teaching:

Cognitive -- If the teacher says that one of his classroom goals is creativity, this would receive a specific code number.

If the test item used by the teacher to measure this goal is strictly a memory recall item, this would receive another code number.

By this classification system the inconsistent teacher will be forced to admit that he is grading the majority of his students strictly on memory even though he really wants to evaluate them on creativity.

A Note on Relevance -- The very fact that teachers come to grips with objective writing is a positive step toward relevant instruction. The first step is sometimes the hardest.

Affective -- Most courses have goals that deal with desirable attitudes and good human relations.

A performance objective system will analyze by code number all the test items, classroom activities, and classwork required of the student.

If none of these activities can be classified as affective, the teacher will be forced to admit that he has overlooked measuring the desired attitude change he claims he wants.

Psychomotor -- Some occupational teachers contend that their goals are primarily psychomotor.

A careful classification of their objectives and evaluation methods will force them to realize that related cognitive and affective skills are also necessary and to realize that the psychomotor domain often involves more than brute force and sometimes less than the precision touch of an artist or surgeon.

Combinations of Cognitive, Affective, and Psychomotor -- Certain repetitive psychomotor tasks can become boring to an uninterested student or a young beginning worker.

Normally, this type of work involves an affective component: a bored worker will be seen slouching against his machine in a manner that his supervisor or foreman would call "slovenly."

Rather than try to settle once and for all whether a worker's sense of identity and his self-concept is a question of the affective or of the cognitive domain and rather than try to decide whether a worker is bored consciously or subconsciously, it is often very practical to realize that many workers simply don't know on the cognitive level what to do to avoid being bored or to avoid giving the impression of being bored.

A fully thought-out course of study expressed in performance objective terms could address itself to this problem without getting bogged down in psychological distinctions.

Pragmatically

Pragmatically means that instead of spending too much time writing too much detail and too much classification, the teacher constantly asks himself this question:

- "Is all this work worth the extra effort?"

Depending upon his answer he will continue or drop the project with a better spirit of understanding.

REQUIRED COURSES

Filling-in the Theoretical Principles with Applications Chosen from Actual Courses and Programs in Occupational Education

The development of common core courses in such things as math and the basic sciences is nothing new in occupational education. Not all of the suggested approaches have been successful.

Typically, an expert (often assumed to be anyone with a Ph. D. in a particular subject matter) was the one who put these courses together.

This often involved three phases: selection, evaluation, and teaching.

The Three Components

The choice of what to learn was made by the experts who had to answer the question:

- "What is the most important subject matter?"

The evaluation of this selection was often made by learning psychologists who had to answer the question:

- "Are the students able and ready to learn this subject matter?"

The teaching had to be done by teachers who were given two directives:

- "Your approach must be practical!"
- "Your students must be motivated!"

The Three Difficulties

Choice

A number of difficulties emerge when one considers the implementation of the chosen subject matter:

- Some students choose their curriculum on the basis of their self-concept instead of on the basis of an analysis of their capabilities and learning potentials.
- Some teachers choose the elements of the curriculum they teach on the basic of their own job experience to the exclusion of other practical applications.
- Such choices are often ill-founded unless someone steps in to add a dose of reality.

Evaluation

Another difficulty emerges when one considers the criteria applied to determine whether or not a particular math or science course is practical and interesting:

- It is possible for a curriculum that has satisfied subject matter specialists and learning psychologists to fail the evaluation of students who are easily bored.
- Trying to specify course goals with the student in mind gives an orientation that "Actions speak louder than words in motivating or evaluating others."
- Motivation is not everything, but with a student of average or above-average ability, it can mean the difference between the bare minimum learning or learning up to the student's ability.

Teaching

The matter becomes even more complicated when one considers the case of the average classroom teacher who has never been told exactly what to teach:

- The beginning teacher is often given a curriculum guide which tells the contents of the course of studies without giving any specific examples of what this means in terms of day-by-day classroom instruction. As a result, he merely tries to do the best he can.
- The experienced teacher is used to curriculum changes. Unless these are spelled out in terms of specific procedures or equipment changes, they are usually filed away without any observable change in classroom performance.
- The independent teacher can become just as complicated. There are studies which suggest that teachers teach less effectively when they feel they are merely dolling out subject matter chosen by someone else.
- What is needed is a system that provides the classroom teacher with the opportunity to select his own classroom objectives from the successful experiences of others and to feel free to spell out his own goals in terms that can be evaluated by classroom effectiveness.

Once objectives are spelled out, it is easier for the teacher to develop test items to evaluate student progress towards these goals. It is also easier for the teacher to evaluate the methodology he used to reach the objective.

The First Steps in This Direction

Only after a teacher has gone through the piecemeal effort required in writing and classifying performance objectives, is he able to start building something with them.

A very practical example comes to mind when one considers common goal courses such as physics, chemistry, and mathematics, that many occupational students are required to study.

These courses which have been chosen by experts are often met with the following typical student objections:

- "These courses aren't practical to my future career."
- "This course tries to cover too much."
- "This course is too theoretical."

These objections are very often unanswerable by the classroom teacher who did not have much choice in the selection of the course content or in the selection of the students who take the course.

Objectives which have been classified for a number of different occupational curricula obviously have various common elements. When these common elements are spelled out in performance objective terms, it will be possible to state categorically that certain principles of physics, chemistry, mathematics, and other sciences are necessary for a majority of occupations.

Other principles of sciences will be found necessary only for certain other occupations.

Once all these related science areas have been identified and classified it will be possible to construct a course that presents these objectives as the primary subject matter. From at least the viewpoint of the application of knowledge, this is another step towards improving the perceived pertinence of a general education course to the student's occupational goals.

Working Together

Given a system of performance objectives written by classroom teachers, subject matter specialists will be able to add another dimension to their choice of the most important things to teach.

Armed with this information, school administrators and learning psychologists will be able to zero in on the most scientific methods of teaching and learning.

Once this sort of feedback is established, teachers will be able to make their classroom and group instruction more practical and humanistic.

PERSPECTIVE:

Necessary Thrusts for the Improvement of Learning and the Relevance of Instruction

The last two sections on Curriculum Development and Required Courses have spent much time on codification and course development.

All this is well and good, but it must never be forgotten that, when one claims that curriculum development means staff development, staff development means the improvement of the teacher's ability to teach in a classroom situation. Staff development through performance objectives means more than only the teacher's increased ability to put down on paper exactly what he is trying to achieve.

The thrust of performance objectives is improvement of the teaching-learning process. Certainly one goal in all courses is the improved ability of the student to learn for himself; this is included in the more general goal of improving the teacher's ability to teach.

ACCOUNTABILITY:. On an
Individual,
Voluntary, and
Confidential Basis

Educators have long been interested in the link between educational dollars spent and educational learning achieved by students.

In the 1970's, the pendulum has swung from observing what teachers do in the classroom to measuring pupil growth. [illegible] occurred against a background of accelerating costs, [illegible] academic performance of disadvantaged children, and inconclusive results of extra dollars spent trying to catch up.

With the introduction of performance objectives, accountability becomes a personal thing. The teacher specifies what he is trying to do, then receives feedback evaluative information, and proceeds to better his own score according to a system he has freely chosen.

The Typical Approach to Goal Writing

Writing performance and behavioral objectives is not a new activity on the educational scene.

A large amount of effort has been expended in writing up objectives to cover a wide variety of courses. This has led to several rules of thumb that can help avoid common pitfalls.

- Decisions must take precedence over paperwork. Too much writing has often obscured the necessary decisions that must precede putting objectives down on paper.
- Objectives should be written that stress significance as well as detail. Irrelevant objectives result when teachers start to write before asking, "Is this what I really want to teach?"
- Objectives should be bounced off the objectives of other teachers teaching the same courses. The feedback necessary for improvement occurs when teachers compare and exchange ideas.
- Achievement is not always the same as test-awareness. Objectives closely linked to test items can be misconstrued as an invitation or imperative to teach to an exam as an unalterable standard.
- Objectives constructed by juries of experts must be used judiciously. The classroom teacher should be treated like an expert; after all, he is a professional. He does not have to be told exactly what to do every step along the way. He is the one who can give practical cues.

This short listing makes it obvious that more than writing performance objectives is necessary to improve classroom instruction. It must be remembered that the classroom is the place where progress must be made if it is to be more than theoretical.

Individual Accountability

The teacher is treated as a professional possessing adequate and expert knowledge:

- He decides exactly what he wants his students to learn and to be able to perform at the end of his instruction.
- He does this by choosing objectives from a bank of possible goals and by writing himself objectives that he feels meet the needs of individual students.

Voluntary Accountability

The teacher sets up the scoring or evaluation system:

- He decides the type of examination and evaluation which will best meet the educational requirements of his students
- He does this by choosing appropriate items from a computerized file or from his own cross-referenced set of items he has specifically written for a particular objective in one of his courses.
- He is not told what to teach or what to measure, but he is asked:
  - "Exactly what do you intend to teach?" and,
  - "Exactly how do you intend to find out if you have been successful?"

Confidential Accountability

The system has built into itself safeguards against teacher ranking and teacher evaluation:

- The teacher, and not the system, decides exactly what data goes into the system and what data is released.
- The teacher decides whether his rate of growth and improvement is satisfactory or not, and he decides what he wants to do about it.

QUALITY : How to Recognize Excellence
as the Accomplishment
# of Clearly Stated Goals

The typical approach to improved classroom instruction has been the imposition of better goals upon teachers. Sometimes, this comes from a state curriculum. Other times, this comes from the imposed will of the majority of one's colleagues. Not infrequently, current issues force their way into the classroom.

In each of these situations and others wherein the classroom teacher is not the one who chooses his own instructional goals, there is the possibility of less effective results. There are many teachers who can successfully and almost effortlessly teach goals put forth by others. There are many other teachers who find the imposition of goals an affront to their professional ability to choose goals and to evaluate their results in attaining them. This imposition of goals and evaluation from a vague exterior source can become a source of threat for many teachers.

Performance objectives means that the teacher clarifies the goals he has chosen or written; it is not a method of imposition. After a goal has been clearly identified, quality is recognizable.

AFFECTIVE DOMAIN : Developing Core Objectives That Pinpoint Attitudes Necessary for All Occupational Areas Related to Entry Level Occupations

The typical occupational student has chosen a specialty at a comparatively young age and at a time when he does not have too much familiarty with the world of work. If serendipity works in his favor, there is no difficulty. The problem arises from a very simple fact : the typical entry level beginning job is often taken in a field for which the applicant has not been trained.

It's not so much that these trainees are dissatisfied with their teachers or counselors. It's simply that the growing-up process has taught them that their interests lie elsewhere. Their training has not been lost since they have picked up good work habits and attitudes which will improve the chances of success on any job. This brings up the question, "Is it possible to identify these core attitudes and skills which stress versatility and job clusters rather than specific trade-linked performances?"

APPLICATIONS

Extending This Approach
to Typical Adaptations

GRADUATE SCHOOL : The M.A. -- Developing the Graduate Frame of Mind Through Recognizable and Readily Evaluated Performance Objectives

The difference between under-graduate and graduate education should be more than a difference of quantity. If the principal norm of the graduate school is more course requirements, more and longer term papers, more books to read, more information to memorize, more questions on the oral examination, and more difficult entrance exams, then the graduate student is possibly not being educated to function on a higher level of operation even though he is being given a thorough training. The ability to perform activities on a qualitatively higher level is not an easy thing to define.

This is where performance referenced criteria come into the picture. One of the most obvious starting places would be to observe professionals generally recognized as superior in their profession. The graduate student might spend a lot of time observing, but possibly this might be a better activity than merely memorizing a large array of information he may never need or use.

THE COLLEGE PRESIDENT : The Role of the College President Towards Objectives -- Structuring a College for Growth Rather Than Relying Solely on Charismatic Leadership

Higher Education is a domain all unto itself. The President is the man who must be aware of its own special demands. If the college is small, the President must decide whether or not to make it larger. If the college is large, the President must decide on how to tie it all together. If the college is going into debt, the President must get it back on its feet. Depending upon his power or lack of it, the College President can find himself in a number of painful situations; for example, he is the one left to implement the decisions of the board of trustees even when they may be against his own preferences.

The College President thinks in terms of goals, sometimes chosen by himself, other times chosen by others. If his goals are not clear, he will find himself wondering where he is going.

THE ROLE OF THE COLLEGE PRESIDENT TOWARDS OBJECTIVES

Structuring a College for Growth

There are a number of sources for ideals and goals a college could pursue:

- Newman, *Idea of a University*,
- Gardner, *Excellence*,
- Lessinger, *Accountability*,
- Mager, *Analyzing Performance Problems*

This list is by no means selective or all inclusive.

However, it does indicate an approach which various educators have set up a continuum from one intellectual ideal for all (Newman) to an ability to adapt to modern times (Gardner) to thinking of education in terms of how much product per dollar (Lessinger). Then, there are others like Mager who ask the questions:

- "What are you trying to do?" and,
- "How well are you doing it?"

The Current Situation

In addition to the current problems facing all instiutions of higher education, the small, private, liberal arts college has a whole set of its own problems:

homogeneity -- Sometimes, all small colleges begin to seem more and more alike; often this can be a sign that a college is also becoming more and more like a university prep.

liberal arts -- There is something to be said for the position that too many small colleges seem to think that all their students are of ivy league caliber, too rich to need occupational preparation.

costs -- The really well known small colleges are not hit especially hard by the cost squeeze; their clientele and reputation take care of this.

ownership and direction -- Once a board of trustees is set up, it is difficult to be sure who has the final word, trustees or a semi-proprietary body as in the immediate past.

size -- Many small colleges want to grow in size; often the upward limit of this growth is left hazy and undefined.

faculty -- This often represents the major yearly financial outlay; on the other hand, it is the major source of student learning and satisfaction.

future -- It is certain that there will always be good private colleges; but just recently, a number of good private colleges have closed doors, and for a number of reasons, not all of them financial or academic.

students -- It would not be unusual to find teachers and administration seeking to have only the best for the ranks of the student body. Yet it can be asked whether or not this should be a goal or an expectation.

The Charismatic Leader

Often, a search for a college president is a search for a charismatic leader who will be able to mold an institutition in a workable extension of his personality.

The position herein taken is a bit different:

- to set up goals for a small liberal arts college is difficult
- no ready-made solution comes to mind
- however, an honest attempt to admit the local difficulties to growth and to set up a few modest goals might be the first step
- without seeing the college in depth, no indication can be given as to where to begin, however, hints of solutions that come to mind give this difficult task the allure of a challenge that could be exciting.

ON-GOING PROJECTS : Brief Resumes of What Others Are Doing to Present Their Programs in Terms That Can Be Understood by a Larger Audience Than That of the Specialized Researchist

The success of any educational project, like that of any form of experimentation, depends upons an unique combination of two rare natural commodities : expertise and common sense. Sometimes, as in the case of abstract formulas, common sense finds that it is not the best criterion. Other times, as in the case of abstruse speculations divorced from reality, expertise has found itself lost in situations where the man on the street would have known what to do.

Both the researchist and the consumer of research have much to give to each other. For any meaningful exchange to take place, dialogue must be established. This will be difficult unless both speak the same language; by necessity, this language must be clear and unambiguous even when talking about very tentative alternatives. The projects cited herein have started this dialogue by trying to keep their language simple while aiming at excellence.